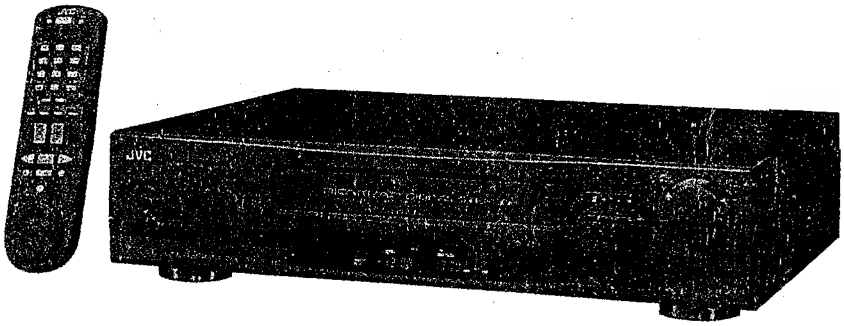
JVC

SERVICE MANUAL

VIDEO CASSETTE RECORDER

HR-J67MS



VHS
PAL NTSC

SPECIFICATIONS

GENERAL

Power requirement	: AC 110 – 240 V∿, 50/60 Hz
Power consumption	: 24 W
Temperature	
Operating	: 5°C to 40°C
Storage	: –20°C to 60°C
Dimensions (WxHxD)	: 435 x 104 x 336 mm
Weight	: 5,5 kg
Format	: VHS standard
Maximum recording time (SP)	: 240 min. with E-240 video cassette (PAL/MESECAM) : 160 min. with T-160 video cassette (NTSC)
(LP)	: 480 min. with E-240 video cassette (PAL/MESECAM)
(EP)	: 480 min. with T-160 video cassette (NTSC)

VIDEO/AUDIO

Signal system	: PAL-type colour signal and CCIR monochrome signal, 625 lines/50 fields : NTSC colour and EIA monochrome signals, 525 lines/60 fields
Recording system	: Rotary two-head helical scan system with slant double-azimuth combination video heads
Signal-to-noise ratio	: 43 dB (Rohde & Schwarz noise meter)
Horizontal resolution	: 240 lines (PAL) 220 lines (NTSC)
Frequency range	: 70 Hz to 10,000 Hz (Normal audio) 20 Hz to 20,000Hz (Hi-Fi audio)
Input/Output	: RCA connectors (IN x 1 OUT x 1)

TUNER/TIMER

TV channel storage capacity	: 48 positions (+ AUX position "AU")
Channel coverage	: Band 1: CH 1 – 5 (China, Russia) CH E2 – E4 (Europe) CH 2 – 6 (U.S.A.) Band 3: CH 6 – 12 (China, Russia) CH E5 – E12 (Europe) CH 7 – 13 (U.S.A.) CATV Channels Band U: CH 13 – 57 (China, Russia) CH E21 – E69 (Europe) CH 21 – 69 (U.K.) CH 14 – 69 (U.S.A.)
Aerial output	: UHF channels E32 – E40 (adjustable)
Programme capacity	: 1-year/8-programme timer
Memory backup time	: 3 min. minimum

ACCESSORIES

Provided accessories	: Aerial cable, Infrared remote control unit, "R6/UM-3" battery x 2, Conversion plug, AC power cord

*Hi-Fi audio recording and playback in NTSC EP mode is not possible.

Specifications shown are for SP mode unless otherwise specified.
Design and specifications subject to change without notice.

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Important Safety Precautions

Prior to shipment from the factory, JVC products are strictly inspected to conform with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

● Precautions during Servicing

1. Locations requiring special caution are denoted by labels and inscriptions on the cabinet, chassis and certain parts of the product. When performing service, be sure to read and comply with these and other cautionary notices appearing in the operation and service manuals.

2. Parts identified by the ⚠ symbol and shaded (▒) parts are critical for safety.
Replace only with specified part numbers.
Note: **Parts in this category also include those specified to comply with X-ray emission standards for products using cathode ray tubes and those specified for compliance with various regulations regarding spurious radiation emission.**

3. Fuse replacement caution notice.
Caution for continued protection against fire hazard.
Replace only with same type and rated fuse(s) as specified.

4. Use specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads

5. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape
   2) PVC tubing
   3) Spacers
   4) Insulation sheets for transistors
   5) Barrier

6. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap ends of wires securely about the terminals before soldering.

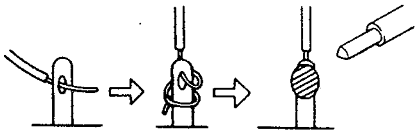


Fig. 1

7. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.)

8. Check that replaced wires do not contact sharp edged or pointed parts.

9. When a power cord has been replaced, check that 10—15 kg of force in any direction will not loosen it.

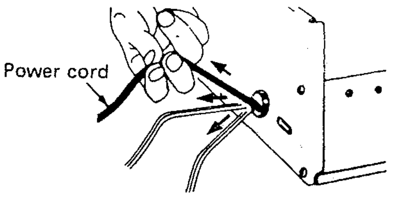


Fig. 2

10. Also check areas surrounding repaired locations.

11. Products using cathode ray tubes (CRTs)
In regard to such products, the cathode ray tubes themselves, the high voltage circuits, and related circuits are specified for compliance with recognized codes pertaining to X-ray emission. Consequently, when servicing these products, replace the cathode ray tubes and other parts with only the specified parts. Under no circumstances attempt to modify these circuits. Unauthorized modification can increase the high voltage value and cause X-ray emission from the cathode ray tube.

12. Crimp type wire connector
In such cases as when replacing the power transformer in sets where the connections between the power cord and power transformer primary lead wires are performed using crimp type connectors, if replacing the connectors is unavoidable, in order to prevent safety hazards, perform carefully and precisely according to the following steps.
   1) **Connector part number :** E03830-001
   2) **Required tool :** Connector crimping tool of the proper type which will not damage insulated parts.
   3) **Replacement procedure**
      (1) Remove the old connector by cutting the wires at a point close to the connector.
      Important : Do not reuse a connector (discard it).

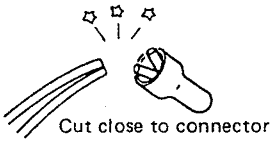


Fig. 3

(2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.

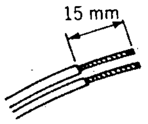


Fig. 4

(3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.

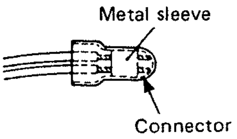


Fig. 5

(4) As shown in Fig. 6, use the crimping tool to crimp the metal sleeve at the center position. Be sure to crimp fully to the complete closure of the tool.

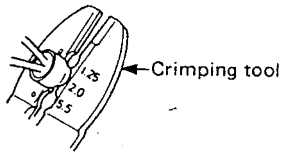


Fig. 6

(5) Check the four points noted in Fig. 7.

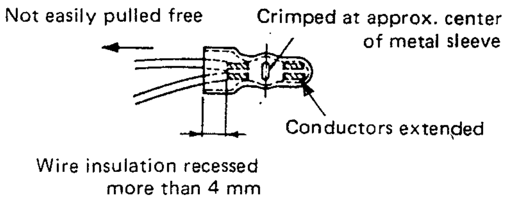

Not easily pulled free
Crimped at approx. center of metal sleeve
Conductors extended
Wire insulation recessed more than 4 mm

Fig. 7

● Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions, Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. **Insulation resistance test**
   Confirm the specified insulation resistance or greater between power cord plug prongs and externally exposed parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

2. **Dielectric strength test**
   Confirm specified dielectric strength or greater between power cord plug prongs and exposed accessible parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

3. **Clearance distance**
   When replacing primary circuit components, confirm specified clearance distance (d), (d') between soldered terminals, and between terminals and surrounding metallic parts. See table 1 below.

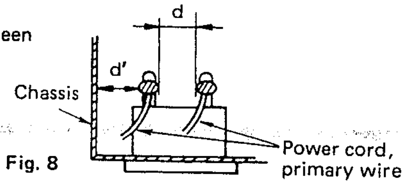


Fig. 8

4. **Leakage current test**
   Confirm specified or lower leakage current between earth ground/power cord plug prongs and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).
   Measuring Method: (Power ON)
   Insert load Z between earth ground/power cord plug prongs and externally exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See figure 9 and following table 2.

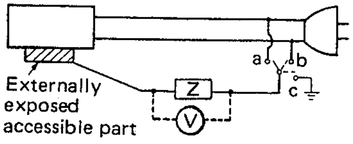


Fig. 9

5. **Grounding (Class I model only)**
   Confirm specified or lower grounding impedance between earth pin in AC inlet and externally exposed accessible parts (Video in, Video out, Audio in, Audio out or Fixing screw etc.).
   Measuring Method:
   Connect milli ohm meter between earth pin in AC inlet and exposed accessible parts. See figure 10 and grounding specifications.

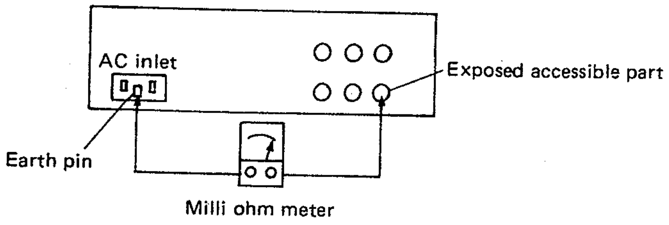


Fig. 10

Grounding Specifications

Region	Grounding Impedance (Z)
USA & Canada	Z ≦ 0.1 ohm
Europe & Australia	Z ≦ 0.5 ohm

AC Line Voltage	Region	Insulation Resistance (R)	Dielectric Strength	Clearance Distance (d), (d')
100 V	Japan	R ≧ 1 MΩ/500 V DC	AC 1 kV 1 minute	d, d' ≧ 3 mm
100 to 240 V			AC 1.5 kV 1 minute	d, d' ≧ 4 mm
110 to 130 V	USA & Canada	–	AC 1 kV 1 minute	d, d' ≧ 3.2 mm
110 to 130 V 200 to 240 V	Europe & Australia	R ≧ 10 MΩ /500 V DC	AC 3 kV 1 minute (Class II) AC 1.5 kV 1 minute (Class I)	d ≧ 4 mm d' ≧ 8 mm (Power cord) d' ≧ 6 mm (Primary wire)

Table 1 Specifications for each region

AC Line Voltage	Region	Load Z	Leakage Current (i)	a, b, c
100 V	Japan	1 kΩ	i ≦ 1 mA rms	Exposed accessible parts
110 to 130 V	USA & Canada	0.15 µF 1.5 kΩ	i ≦ 0.5 mA rms	Exposed accessible parts
110 to 130 V 220 to 240 V	Europe & Australia	2 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Antenna earth terminals
		50 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Other terminals

Table 2 Leakage current specifications for each region

Note: These tables are unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

INSTRUCTIONS

Safety Precautions

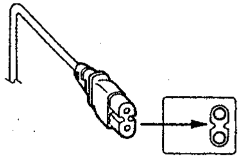
The rating plate and the safety caution are on the rear of the unit.

WARNING: DANGEROUS VOLTAGE INSIDE
WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

The OPERATE button does not completely shut off mains power from the unit, but switches operating current on and off.

This unit is produced to comply with Directives 76/889/EEC, 82/499/EEC, 87/308/EEC and Standard IEC Publ. 65.

CAUTION



- To avoid electric shock or damage to the unit, first firmly insert the small end of the AC power cord into the recorder until it is no longer wobbly, and then plug the larger end of the AC power cord into an AC outlet.
- When you are not using the recorder for a long period of time, it is recommended that you disconnect the power cord from the AC outlet.
- Dangerous voltage inside. Refer internal servicing to qualified service personnel. To prevent electric shock or fire hazard, remove the power cord from the AC outlet prior to connecting or disconnecting any signal lead or aerial.
- Use the conversion plug (provided) depending on the type of your AC wall outlet.

VHS HQ
PAL NTSC

- Only cassettes marked "VHS" can be used with this video recorder.
- HQ VHS is compatible with existing VHS equipment.

IMPORTANT:
1. This recorder can also receive SECAM colour television signals for recording and playback.
2. Recordings made of SECAM television signals produce monochrome pictures if played back on another video recorder of SECAM standard, or do not produce normal colour pictures if played back on another video recorder of PAL standard.
3. SECAM prerecorded cassettes or recordings made with a SECAM video recorder produce monochrome pictures when played back with this recorder.

Video tapes recorded with this video recorder in the LP (Long Play) or EP (Extended Play) mode cannot be played back on a single-speed video recorder.

POWER SYSTEM
This set operates on voltage of AC110 – 240 V∿, 50/60 Hz with automatic switching.

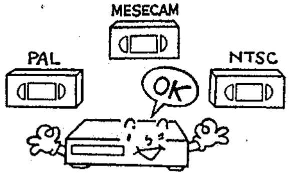
WARNING
Pre-recorded tapes, records or discs should not be re-recorded without the consent of the owners of copyright in the sound recording and in any copyright musical or literary work embodied in that recording as this constitutes an infringement of copyright.

IMPORTANT:
- Please read the "Precautions" section of this instruction manual before installing or operating the recorder.

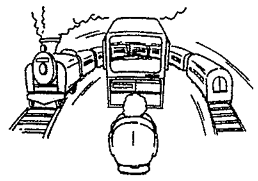
Features

Express Timer
Makes timer programming as easy as pressing three buttons on the recorder. Start time, stop time, engage — that's all!

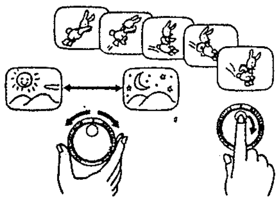
Multi-System Compatibility
You can enjoy watching programmes and software from many different countries.



Hi-Fi Stereo Sound
Enjoy the full stereo sound that Hi-Fi VHS software is able to provide. It's the easiest way to bring the sound of a movie theatre right into your home.



Jog/Shuttle Control
Versatile control of tape speed and direction — great for editing and for searching.



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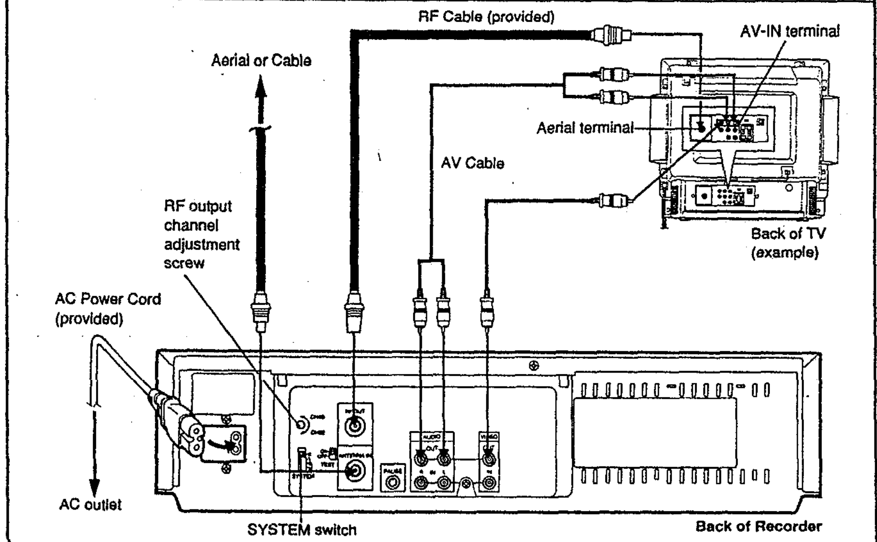
Installation

BASIC CONNECTIONS



It's essential that your video recorder be properly connected. Follow these steps carefully. THESE STEPS MUST BE COMPLETED BEFORE ANY VIDEO OPERATION CAN BE PERFORMED.

A RECORDER-TO-TV CONNECTION

RF CONNECTION

For TV sets without AV input terminals:

1. Connect the TV aerial cable to the recorder.
2. Connect the recorder with the provided RF cable to the TV's aerial terminal.

AV CONNECTION

For TV sets with AV input terminals:

1. Connect the aerial, recorder and TV as per "RF CONNECTION".
2. Connect the recorder to the TV's AV-IN terminals.

B CONNECT RECORDER TO WALL OUTLET

1. First, firmly insert the small end of the AC power cord into the recorder, and then plug the larger end of the AC power cord into the AC outlet.
   - Use the plug adapter depending on the type of your AC wall outlet.

C SELECT TELEVISION SYSTEM

Set the SYSTEM switch to the appropriate position according to your TV system. (Refer to the chart below.)

Major countries	Colour TV broadcast system	Switch position
China, Mongolia	PAL D/K	K
Russia	SECAM D/K	
Hong Kong	PAL I	I
Indonesia, Singapore, Thailand, Malaysia	PAL B/G	G
U.S.A., Japan, S. Korea, Taiwan	NTSC M	M

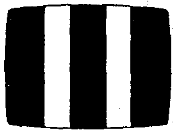
NOTES:

- If no colours appear on the screen when using a multi-system television with its system select switch set to AUTO, change the switch position to correspond to the recorder's RF system select switch (K, I, G or M).
- For more information on multi-system compatibility, ☞ p.21

D ADJUST VIDEO CHANNEL

With an RF connection, the video recorder sends picture and sound signals through the connecting cable to your TV on a UHF channel. Your video recorder's RF converter channel is preset to a frequency corresponding to UHF channel 36 according to the European channel system.

TEST SIGNAL



1. Turn on the recorder.
2. Set the TEST switch to ON.
3. Press TV/VIDEO to engage the VIDEO mode.
4. Set your TV to UHF channel 36 according to your television's UHF channel system, and fine-adjust it until you bring in the two vertical white bars on the screen most clearly.
5. Reset the TEST switch to OFF.

NOTE:

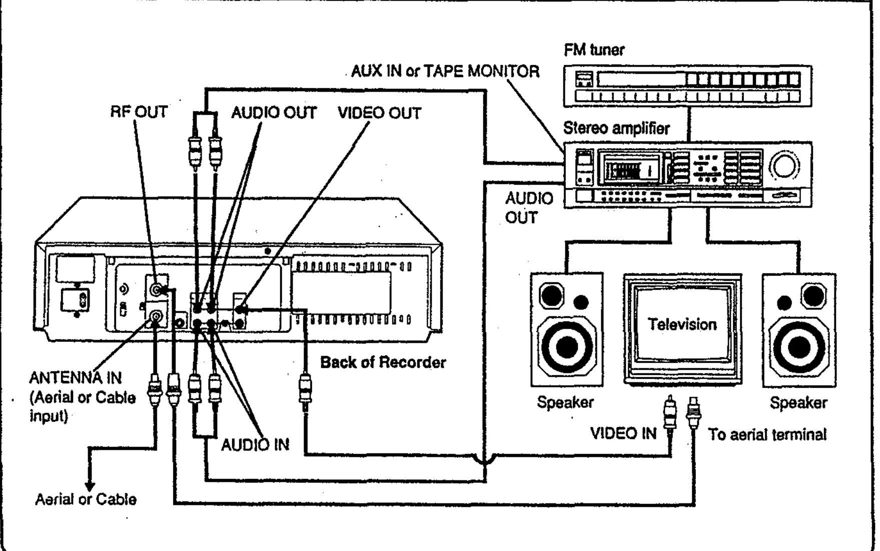
If some interference noise is seen on the screen because of broadcasts on neighbouring channels, adjust the RF output channel adjustment screw to change the video channel from UHF channel 36. This is possible for UHF channels 32 through 40 according to the European channel system.

IMPORTANT:

To operate the recorder with your TV using an RF connection, it is always necessary to set your TV's channel to VIDEO CHANNEL. With an AV connection, set the TV to the VIDEO (or AV) mode.

Installation (cont'd)

CONNECTING TO HI-FI STEREO SYSTEM


FM tuner
AUX IN or TAPE MONITOR
RF OUT
AUDIO OUT
VIDEO OUT
Stereo amplifier
AUDIO OUT
Television
Back of Recorder
ANTENNA IN (Aerial or Cable input)
Speaker
Speaker
VIDEO IN
To aerial terminal
AUDIO IN
Aerial or Cable

If you have a Hi-Fi stereo system, you can connect your video recorder to it so that the sound can be heard through your Hi-Fi system. Please make these additional connections:

Hi-Fi AUDIO CONNECTION

1. Connect the AUDIO IN L and R connectors of the recorder to the recording output terminals of the amplifier.
2. Connect the AUDIO OUT L and R connectors of the recorder to the AUX IN or TAPE MONITOR terminals of the amplifier.

NOTES:

- Make sure L and R are correct when connecting the audio input and output connectors of the recorder to a stereo amplifier.
- When listening to sound from the connected stereo system, turn down the sound volume of the TV completely.

CAUTION:

- This recorder has a dynamic range of more than 90 dB with regards to its hi-fi audio capability. It is recommended that you check the maximum level if you are going to listen to the hi-fi audio signals through a stereo amplifier. A sudden surge in speaker input may cause speaker damage.
- Some speakers and televisions are specially shielded to prevent television interference. If both are of the non-shielded type, do not place the speakers adjacent to the TV set, otherwise the video playback picture may be adversely affected.

Controls And Indicators

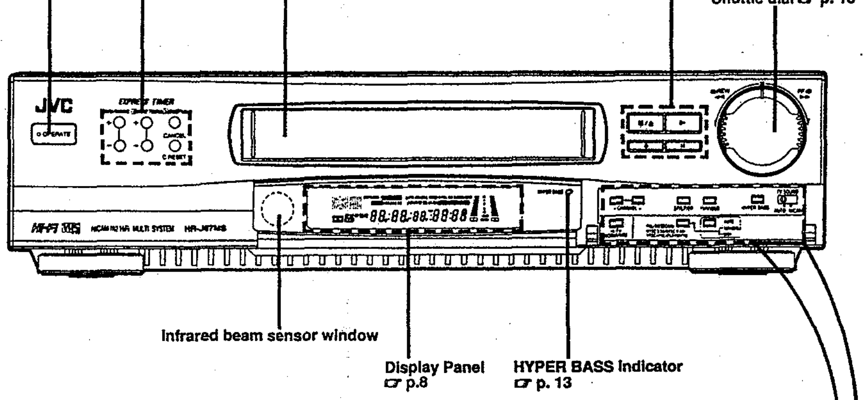
Front Panel

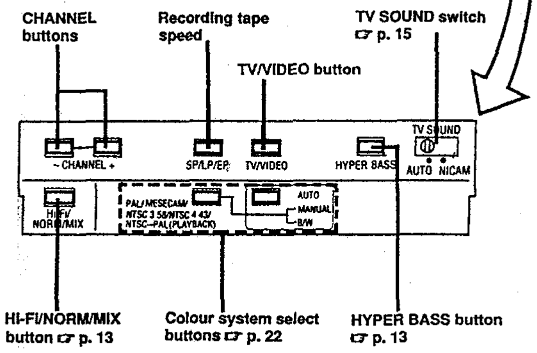
WARNING

- Do not insert fingers or foreign objects into the cassette loading slot since this could lead to injury or damage to the mechanism. Be especially careful with children.
- Do not try to pull out a cassette once automatic loading has started.

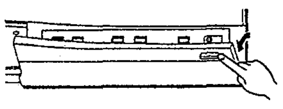
Basic operation buttons

■/▲	Stop/Eject
►	Play
●	Record
❚❚	Pause/Still


OPERATE button and indicator
Buttons for Express Timer programming
Cassette loading slot
Shuttle dial ☞ p. 13
JVC
OPERATE
EXPRESS TIMER
CANCEL
HI-FI
Infrared beam sensor window
Display Panel ☞ p.8
HYPER BASS indicator ☞ p. 13

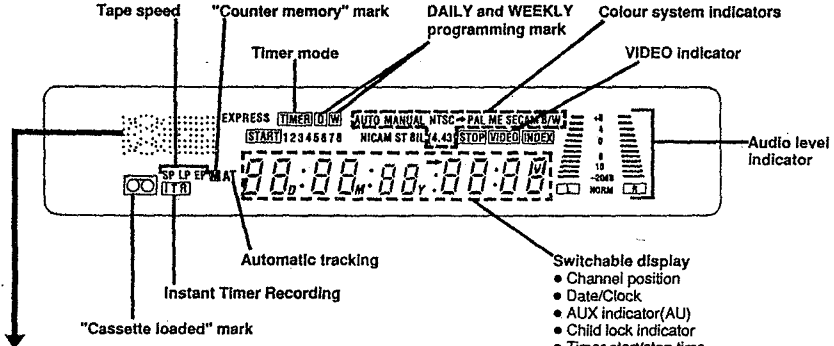

CHANNEL buttons
Recording tape speed
TV/VIDEO button
TV SOUND switch ☞ p. 15
– CHANNEL +
SP/LP/EP
TV/VIDEO
HYPER BASS
TV SOUND
AUTO
NICAM
Hi-Fi/NORM/MIX
PAL/MESECAM/NTSC 3.58/NTSC 4.43/NTSC→PAL (PLAYBACK)
AUTO
MANUAL
B/W
HI-FI/NORM/MIX button ☞ p. 13
Colour system select buttons ☞ p. 22
HYPER BASS button ☞ p. 13

Open lid to access covered connectors and buttons.



Controls And Indicators (cont'd)

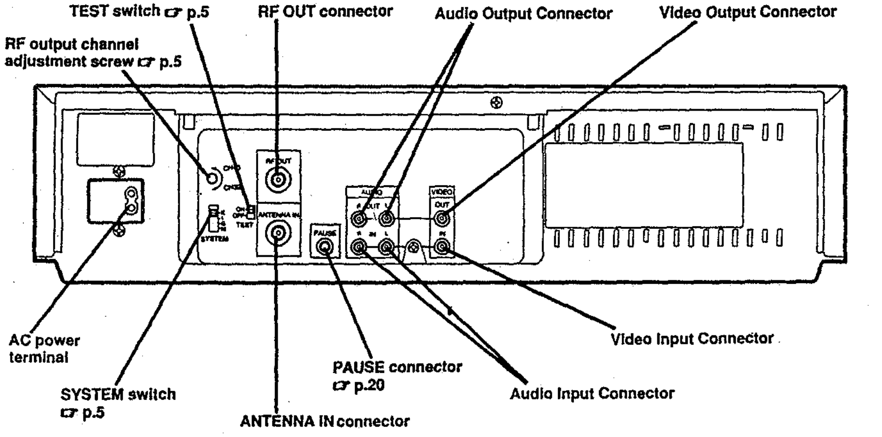
Display Panel


Tape speed
"Counter memory" mark
DAILY and WEEKLY programming mark
Colour system indicators
Timer mode
VIDEO indicator
EXPRESS TIMER D W AUTO MANUAL NTSC PAL ME SECAM B/W
START 12345678 NICAM ST BIL 4.43 STOP VIDEO INDEX
SP LP EP AT
Audio level indicator
Automatic tracking
Instant Timer Recording
"Cassette loaded" mark
Switchable display
• Channel position
• Date/Clock
• AUX indicator(AU)
• Child lock indicator
• Timer start/stop time
• Instant timer recording time
• Real channel
• Realtime tape counter
• INDEX code number

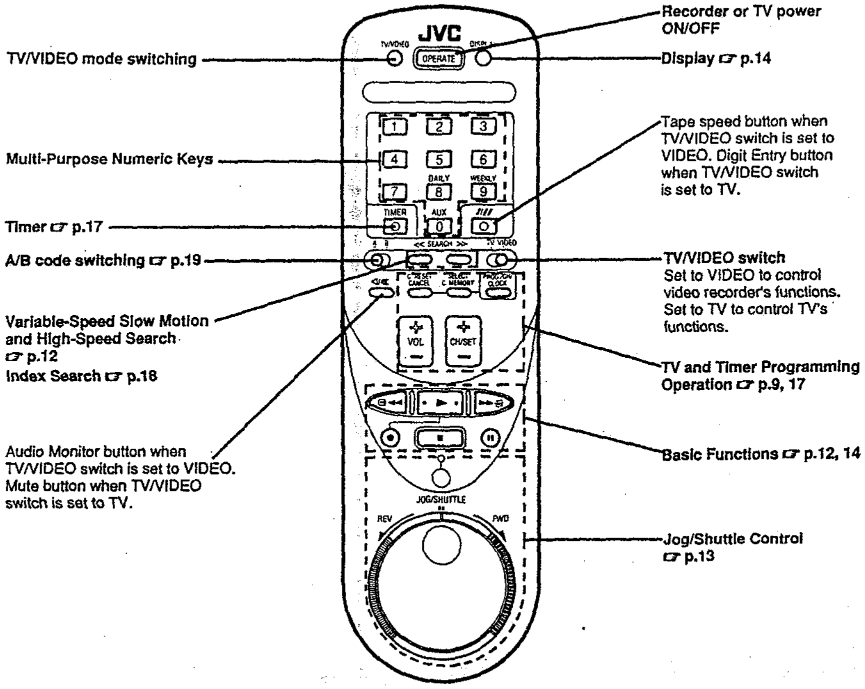
Symbolic mode indicators

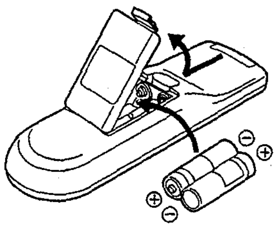
PLAY:	▷	REW VARIABLE SHUTTLE SEARCH:	◁ ◁◁
FF:	▷▷	STILL: FORWARD SLOW:	▷ ▯▯
REW:	◁◁	RECORD:	○
FF VARIABL SHUTTLE SEARCH:	▷ ▷▷	RECORD PAUSE:	○ ▯▯
REVERSE PLAY:	◁		

Rear Panel


TEST switch ☞ p.5
RF OUT connector
Audio Output Connector
Video Output Connector
RF output channel adjustment screw ☞ p.5
AC power terminal
SYSTEM switch ☞ p.5
ANTENNA IN connector
PAUSE connector ☞ p.20
Audio Input Connector
Video Input Connector

Remote Control Unit


JVC
OPERATE
TV/VIDEO mode switching
Recorder or TV power ON/OFF
Display ☞ p.14
Multi-Purpose Numeric Keys
Tape speed button when TV/VIDEO switch is set to VIDEO. Digit Entry button when TV/VIDEO switch is set to TV.
Timer ☞ p.17
A/B code switching ☞ p.19
TV/VIDEO switch Set to VIDEO to control video recorder's functions. Set to TV to control TV's functions.
Variable-Speed Slow Motion and High-Speed Search ☞ p.12
Index Search ☞ p.18
TV and Timer Programming Operation ☞ p.9, 17
Audio Monitor button when TV/VIDEO switch is set to VIDEO. Mute button when TV/VIDEO switch is set to TV.
Basic Functions ☞ p.12, 14
Jog/Shuttle Control ☞ p.13
VOL
CH/SET
JOG/SHUTTLE
REV
FWD



Installing Batteries

1. Open the battery compartment cover.
2. Insert 2 "R6/UM-3"-size batteries (provided) in the correct directions.
3. Replace the cover.

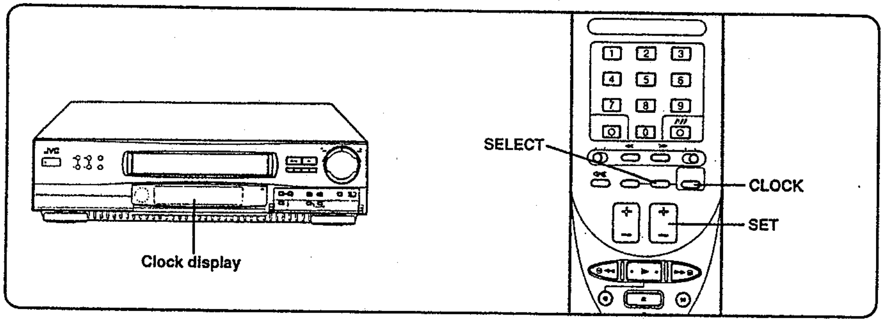
How To Use

The remote control can operate most of your video recorder's functions, as well as basic functions of designated JVC TV sets.

- Point the remote control toward the sensor window.
- The maximum operating distance of the remote control is about 8 m.

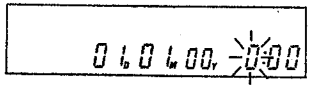
You can also use the recorder's remote control to operate a JVC television.
To operate your TV, slide the TV/VIDEO switch to TV, then press OPERATE, or CH(annel) +/–, or TV/VIDEO, or VOLUME +/–, or DISPLAY (for the TV's on-screen display function), or /// (for the TV's digit entry function), or ◁/◁◁ (to mute the TV's sound).

Setting The Clock

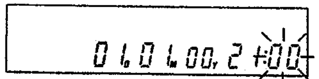


Since your video recorder bases all of its timer recording start and stop "decisions" on the time kept by its built-in clock, accurate setting of this clock is crucial for proper timer-recording results.

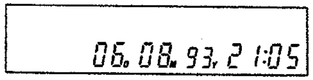
1. Press CLOCK.



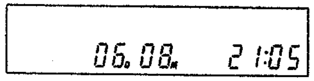
2. Press SET to set the hour, and then SELECT.



3. Repeat step 2 to set the minute, day , month and year.



4. Press CLOCK.



TO MAKE CORRECTIONS

Advance with SELECT to the item you wish to change and input new data with SET.

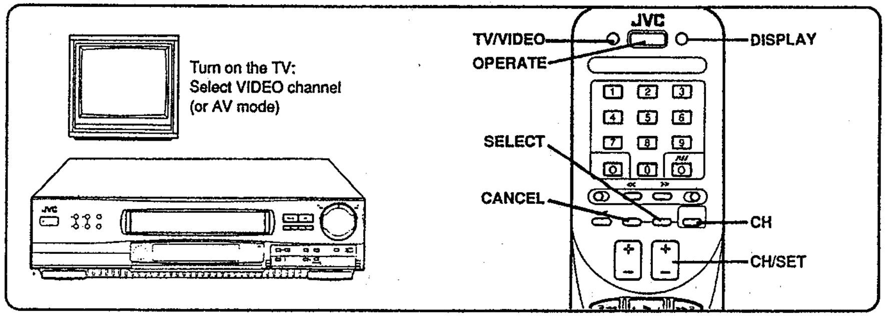
POWER FAILURE INDICATOR

The clock resets to "0:00" and starts blinking when there has been a power failure. Reset the time to return the clock display to normal.

NOTE:

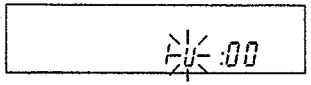
- If the day and month data is invalid (such as 31st April), the month digits are cleared automatically and the day digits will blink. Input again.

Setting The Tuner



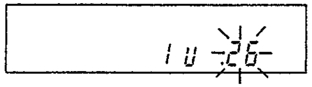
The procedure introduced here lets you assign receivable channels in your area to channel positions on your video recorder's tuner. Once stored, these can be accessed with the CHANNEL buttons.

1. **Press OPERATE and then TV/VIDEO to engage the VIDEO mode.**
2. **Press CH.**
3. **Press SELECT.**
   - The band indicator will blink.
4. **Press CH/SET to select "1", "3", or "U".**
   "1", "3" : VHF band "U" : UHF band



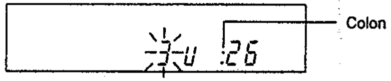
Tuning voltage giving a rough reference of where tuning is being performed in the corresponding band.

5. **Press SELECT.**
6. **Keep CH/SET + pressed for a few seconds until automatic scanning starts.**



- When a broadcast is detected, automatic scanning stops.
- If you don't want to store the detected TV station, repeat step 6 for another station.

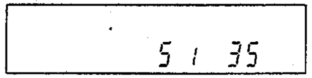
7. **Press SELECT.**
8. **Press CH/SET to select the tuner channel position where you wish to store that TV station.**



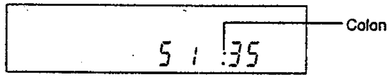
9. **Press CANCEL to store that TV station.**
   - The colon will disappear when the station is stored.
10. **Repeat steps 4 through 9 for other receivable TV stations.**
11. **Press DISPLAY to disengage the tuning mode.**

TO DELETE STORED CHANNELS

1. Press CH/SET to select the channel position you want to skip.
2. Press CH.



3. Press CANCEL to delete that TV station.



- The colon will appear when the station is deleted. Channel position 5 can no longer be chosen by CH/SET buttons.

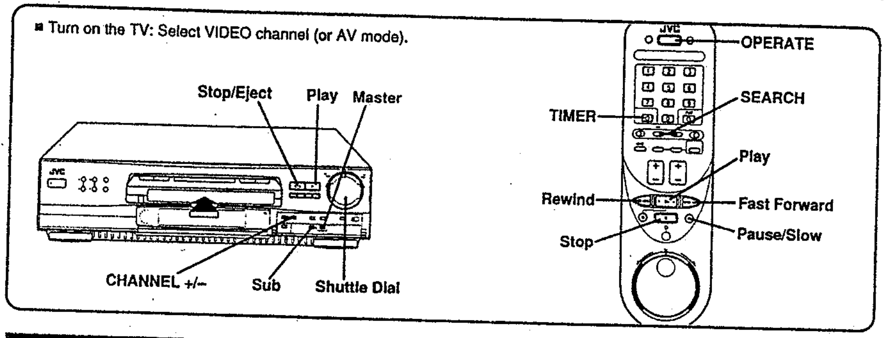
4. Press DISPLAY to disengage the tuning mode.

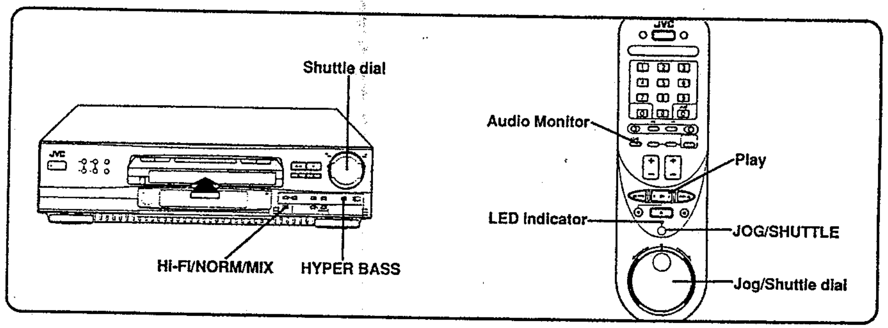
Available channels in each band

Band Indicator	Channels
1	CH 1 – 5 (China, Russia) CH E2 – E4 (Europe) CH 2 – 6 (U.S.A.)
3	CH 6 – 12 (China, Russia) CH E5 – E12 (Europe) CH 7 – 13 (U.S.A.) CATV Channels
U	CH 13 – 57 (China, Russia) CH E21 – E69 (Europe) CH 21 – 69 (U.K.) CH 14 – 69 (U.S.A.)

Playback

- Turn on the TV: Select VIDEO channel (or AV mode).





Basic Operations

IMPORTANT:
- Normally set colour system detection to "AUTO" by pressing the Master button. If a tape is not played back correctly, try setting the Master and Sub buttons manually. ☞ p. 22. After playback is completed, it is recommended that you re-set the Master button to AUTO.
- If viewing an NTSC tape, set the Sub button to match the type of TV being used. ☞ p. 23.
- For more information on multi-system compatibility, ☞ p. 21.

1. **Load a cassette.**
   - The recorder power will come on automatically.
   - The counter will re-set to "0:00:00" automatically.
   - If the safety tab on the cassette is removed, playback will start automatically.
2. **Press Play to start playback.**
3. **Press Stop to stop playback.**
   - To rewind the tape, press Rewind or turn the Shuttle to the left and release it.
   - To fast-forward the tape, press Fast Forward or turn the Shuttle to the right and release it.
   - To stop rewind or fast-forward, press Stop.
4. **Press Stop/Eject on the recorder to eject the tape.**

Variable-Speed/High-speed Search, Still Playback/Frame Advance/Forward Slow Motion

During Playback or Still:
- Press either SEARCH button for variable-speed search.
- The more times the button is pressed, the faster the playback picture will move.
- To decrease speed, press the button for the opposite direction.

During Playback:
- Press Fast Forward for high-speed forward search, or Rewind for high-speed reverse search.
- For short searches, keep Fast Forward or Rewind pressed for more than 2 seconds. When released, normal playback will continue.
- Press Pause/Slow to view a still picture.
- Press again to advance the picture frame by frame.
- Press Pause/Slow for 2 seconds for slow motion.

Other Functions

Manual Tracking

Your video recorder is equipped with automatic tracking control. If there is picture distortion or "breaks" in the sound of Hi-Fi VHS tapes caused by mistracking, you can finely adjust tracking manually.

During Playback:
1. Press the recorder's CHANNEL +/– buttons simultaneously.
2. Press CHANNEL +/– to adjust tracking.
   - Press CHANNEL +/– simultaneously to return to automatic tracking.

During Slow:

1.Simply press CHANNEL +/– to adjust tracking.

Repeat Playback

During Playback:
1. Press Play for more than 5 seconds, and release.
   - The Play indicator (▷) on the display panel will blink slowly.
   - The tape will be played all the way to the end, 20 times automatically, and then stop.
2. To stop playback at any time, press Stop.

NOTES:
- The recorder automatically stops when still continues for more than 5 minutes.
- If the still picture is unstable, use the CHANNEL buttons to correct the picture.
- During search playback, some noise bars will appear.
- When playing back LP recordings or NTSC recordings in the search, still, or frame-by-frame playback mode, the picture will be distorted, and there will be a loss of colour.
- There is no audio during search, slow, still, or frame-by-frame playback.
- When a new tape is inserted, the recorder enters the automatic tracking mode automatically.
- Tapes with monaural soundtracks (normal audio) are automatically played back in the NORM mode. When playing back tapes with Hi-Fi stereo soundtracks, ☞p.13.

Soundtrack Selection

During Playback:
Your video recorder is capable of recording three soundtracks (HIFI L, HIFI R and NORM) simultaneously, and playing back the selected soundtrack.
- Pressing Audio Monitor on the remote control changes the track:

Track	Use:
L + R	for Hi-Fi stereo tapes.
L	for main audio of bilingual tapes.
R	for sub audio of bilingual tapes.

- Pressing Hi-Fi/NORM/MIX on the recorder changes the mode:

Mode:	Track: (on display panel)	Use:
HIFI	L and/or R	for Hi-Fi stereo tapes
NORM	NORM	for audio-dubbed tapes.
MIX	NORM + L and/or R	for audio-dubbed tapes.

NOTES:
- Normally use the L + R position. Then Hi-Fi stereo tapes are played back in stereo, and tapes with normal audio only are played back automatically in the NORM mode.
- Hi-Fi audio playback in NTSC EP mode is not possible.

Hyper Bass

You can boost the bass sounds of music videos to make them sound more exciting. (Via AV connection only ☞ p.4)

During Playback :
1. Press HYPER BASS.
   - The HYPER BASS indicator will light, and bass sounds will be boosted.
2. Press HYPER BASS again to cancel the Hyper Bass mode.

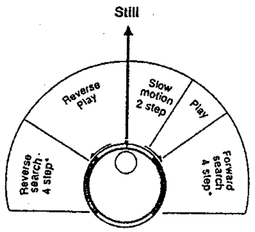
Jog Shuttle Dial Control

You can view pictures in slow to fast motion, or frame-by-frame, in either direction.

During Playback or Still:
1. Press JOG/SHUTTLE.
   - The LED indicator will light.
2. Turn the outer ring (SHUTTLE) in either direction. The farther the ring is rotated, the faster the search speed. Releasing the ring stops the picture in the Still mode.
   - The Shuttle dial on the video recorder also operates this way.
   - For fast-forward with a visible picture, turn the Shuttle all the way to the right and release it within 1 second.
   - For rewind with a visible picture, turn the Shuttle all the way to the left and release it within 1 second.
   - Slow motion is not possible in the reverse direction.

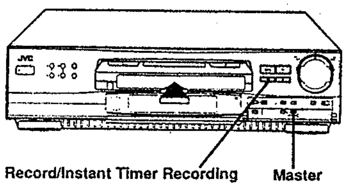
During Playback or Still:
1. Press JOG/SHUTTLE.
   - The LED indicator will light.
2. Turn the inner dial (JOG) in either direction for jog control. The tape moves forward or backward frame-by-frame at the speed with which the dial is turned.
   - Frame-by-frame playback is not possible in the reverse direction.

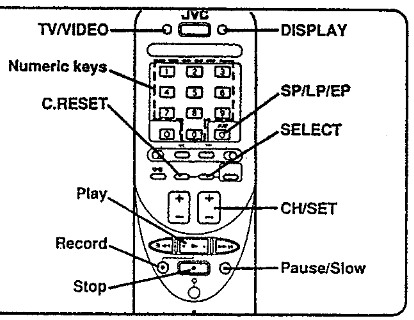
To resume normal playback, press Play button.



*Only 3-step in NTSC SP mode.

- Turn on the TV: Select VIDEO channel (or AV mode).





Basic Operations

IMPORTANT:
- Press the Master button so "AUTO" lights up on the display panel.
- For more information on multi-system compatibility, ☞ p. 21.

1. **Load a cassette.**
   - The recorder power will come on automatically. Be sure that the VIDEO indicator is lit; if not, press TV/VIDEO so that it lights.
2. **Press CH/SET or the numeric keys to select the channel you wish to record.**
3. **Press SP/LP/EP to select the tape speed.**
4. **Press Record and Play simultaneously.**
5. **Press Pause/Slow to pause recording.**
6. **Press Play to resume recording.**
7. **Press Stop to stop recording.**

To Watch Another Programme While Recording

During Record:
1. Press TV/VIDEO. The VIDEO indicator on the display panel and the TV broadcast being recorded will disappear.
2. Use the channel controls on the TV to select the other channel you wish to view.
   - The programme selected with the TV's channel controls will appear on the TV screen while the one selected with the video recorder's channel controls will be recorded on the tape.

Elapsed Recording Time Indication

When you need to know the exact time of a recording.
1. Press DISPLAY until a counter reading appears on the display panel.
2. Press C.RESET before starting recording or playback.
   - The counter will be reset to "0:00:00" and show the exact elapsed time as the tape runs.

Other Functions

Instant Timer Recording (Off Timer)

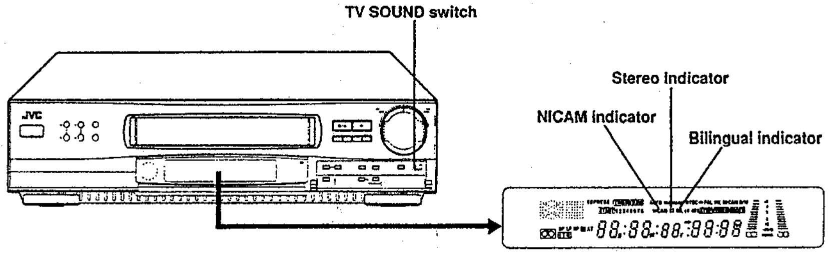
You can start a recording and then set the recorder to shut off automatically after a set duration.

During Record:
1. Press Record on the recorder. "ITR" and "0:30" indications appear, advising that power will switch off after 30 minutes.
2. Press Record again to delay the off-time by 30-minute increments (up to 4 hours).
   - For more precise setting, use the remote control's SELECT and CH/SET buttons to set the exact time required (possible up to 8 hours and 59 minutes).

Display Button

When you wish to check the time, date, or counter reading
1. Press DISPLAY to display the current clock time.
2. Press DISPLAY again to display the current date.
3. Press DISPLAY again to display the counter reading.

NOTES:
- To start recording with the recorder's Record button, press it once on its own.
- After pause, when recording is resumed, a few frames recorded before the pause may be overlapped by the new recording. This is meant to reduce picture distortion and is not a malfunction.
- The recorder automatically stops when record-pause continues for more than 5 minutes.
- If the Record button does not work, check to see if the cassette's safety tab has been removed.
- The channel cannot be changed while recording is in progress. To change the channel, engage the record-pause mode, then change the channel.
- The recorder automatically rewinds when the end of the tape is reached during recording.
- The recorder automatically places an index code on the tape every time recording begins. For information on the Index Search function, ☞ p. 18.
- Hi-Fi audio recording in NTSC EP mode is not possible.



To Record Stereo And Bilingual Programmes (A2)

- Stereo programmes are automatically recorded in stereo on the Hi-Fi audio track (with the normal audio track recording mixed L and R channel sound).
- Bilingual programmes are automatically recorded in bilingual on the Hi-Fi audio track. The main soundtrack will be recorded on the normal audio track.

NOTES:
- If the quality of stereo sound being received is poor, the Stereo indicator (ST) will go off, and the broadcast will be received in monaural with better quality.
- When recording NTSC broadcasts:
  - Stereo programmes will be recorded in monaural.
  - Only main soundtrack of bilingual programmes will be recorded.

To Record NICAM Stereo And Bilingual Programmes

When the TV SOUND switch is set to AUTO:
- If the NICAM audio programme corresponds to the TV picture, the NICAM audio programme will be recorded on the Hi-Fi audio track, and the Standard audio programme on the normal audio track.
- If the NICAM audio programme doesn't correspond to the TV picture, the Standard audio programme will be recorded on both the Hi-Fi and normal audio tracks.

When the TV SOUND switch is set to NICAM:
- The NICAM audio programme will be recorded on the Hi-Fi audio track, and the Standard audio programme on the normal audio track.

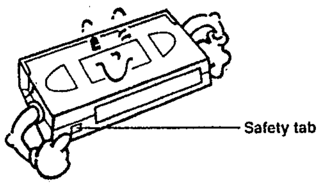
Usable Cassettes And Their Recording Times

This video recorder can record on regular VHS and Super VHS cassettes. However, it will record and play back regular VHS video signals only. It is not possible to play back a recorded Super VHS tape.

Type of Cassette	Recording/Playback Time (minutes)		Recording/ Playback System
	SP Speed	LP Speed	
E-240	240	480	PAL/SECAM/MESECAM
E-180	180	360	PAL/SECAM/MESECAM
E-120	120	240	PAL/SECAM/MESECAM
E-90	90	180	PAL/SECAM/MESECAM
E-60	60	120	PAL/SECAM/MESECAM
E-30	30	60	PAL/SECAM/MESECAM
Type of Cassette	Recording/Playback Time (minutes)		Recording/ Playback System
	SP Speed	EP Speed	
T-160	160	480	NTSC
T-120	120	360	NTSC
T-90	90	270	NTSC
T-60	60	180	NTSC
T-30	30	90	NTSC

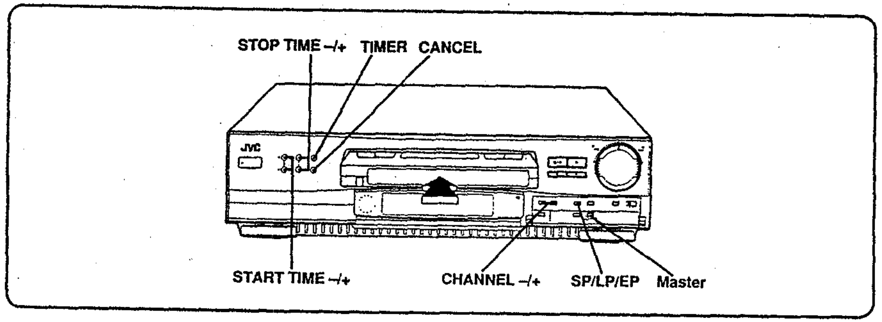
Accidental Erasure Prevention

To prevent accidental recording on a recorded cassette, remove its safety tab. To record on it later, cover the hole with adhesive tape..



Timer-Recording

— Express Timer —



The "Express Timer" is the quickest method of programming your video recorder's timer. TV shows to be broadcast within 24 hours can be programmed for automatic recording simply by pressing three buttons (conveniently numbered) on your recorder's control panel.

TIMER PROGRAMMING IS NOT POSSIBLE UNLESS THE CLOCK HAS BEEN SET.

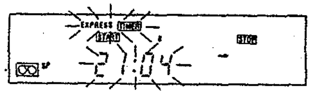
Preparation

Insert a cassette with the safety tab in place.

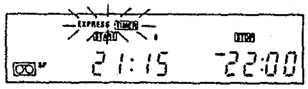
- The recorder power will come on automatically.
- The display panel will show the channel being received.
- To change the channel, press CHANNEL.
- To change the tape speed, press SP/LP/EP.

> **IMPORTANT:**
> - Press the Master button so "AUTO" lights up on the display panel.
> - For more information on multi-system compatibility, ☞ p. 21.

1. **Press START TIME +.**
   - The current time will appear on the display panel.
2. **Press START TIME +/– to set the start time.**
   - START TIME + (STOP TIME +) advances the time and START TIME – (STOP TIME –) reverses the time.
   - Press briefly to change by 1 minute. Hold the button down to change by 30-minute increments.



   - After the start time is set, the date (today or tomorrow) and channel will be displayed for 3 seconds.
3. **Press STOP TIME +.**
   - The start time will be transferred over to the stop time position.
4. **Press STOP TIME +/– to set the stop time.**



5. **Press TIMER.**
   - The recorder will enter the Timer mode and power will go off.

TO CANCEL THE PROGRAM

While timer programming, press CANCEL.

- Pressing CANCEL again disengages the Express Timer Program mode.

Or...

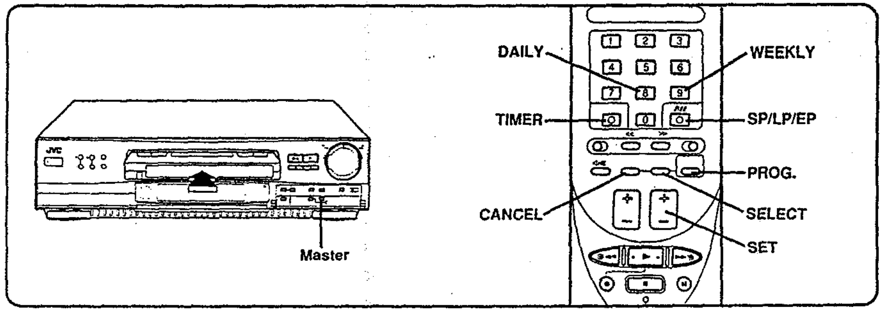
While in the Timer mode, first press TIMER to disengage the Timer mode, and press START TIME+. Then press CANCEL twice.

TO CHECK PROGRAMMED SETTINGS

While in the Timer mode, press START TIME + to check the settings you have programmed. DO NOT press START TIME + while the Timer mode is cancelled because this will clear the programmed data for a new entry.

To use the recorder after setting to the Timer mode, ☞ p.17

— Standard Timer Programming —



Timer programming can be done with the remote control while referring to the recorder's display panel. Make sure that the display panel shows the correct current time.

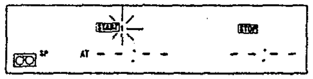
Preparation

Insert a cassette with the safety tab in place.

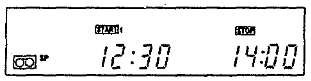
- The recorder power will come on automatically.

> **IMPORTANT:**
> - Press the Master button so "AUTO" lights up on the display panel.
> - For more information on multi-system compatibility, ☞ p. 21.

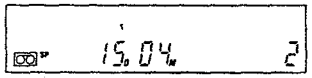
1. **Press PROG. until the display panel shows the following.**



   - You are ready to input data into Program No. 1.
   - To change the program number, press PROG.
2. **Press SELECT.**
3. **Press SET to set the start hour, and then SELECT.**
4. **Repeat step 3 to set the minute and stop time.**

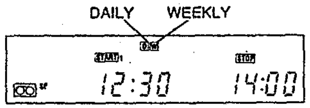


5. **Press SET to set the day, month and channel, and then SELECT.**



   - The current program number will blink.
   - If you need to set another program, repeat steps 1 through 5.
6. **Press SP/LP/EP to select the tape speed.**

WEEKLY program	: During steps 1 through 6, press numeric key "9" on the remote control.
DAILY program	: During steps 1 through 6, press numeric key "8" on the remote control.



7. **Press TIMER.**
   - The recorder will enter the Timer mode and power will go off.

TO MAKE CORRECTIONS

Press SELECT to make the item you want to change blink, and input new data.

TO CHECK AND CANCEL PROGRAMS

To check preset programs:

1. Press PROG. until the program settings are displayed.
   - Program 1 is displayed with the number blinking.
2. Press SELECT to review the program contents in succession.
3. To check another program, press PROG. again.

To cancel the program:

4. Press CANCEL.
   - You can press CANCEL at any stage while the program is open.

TO USE THE RECORDER AFTER SETTING TO THE TIMER MODE

For safety, your recorder disables all other functions while in the Timer mode.

- Press TIMER to disengage the Timer mode.
- To re-engage the Timer mode, press TIMER.

Timer-Recording (cont'd)

Error Indications

The following error indications may appear on the recorder when you press the TIMER button to engage the Timer Standby mode. Here's why, and what you should do.

- "TIMER" and "[oo]" on the display panel continue blinking.

WHY: There is no cassette in the recorder.
WHAT TO DO: Insert a cassette.

- The cassette is automatically ejected. "TIMER" and "[oo]" continue blinking.

WHY: The inserted cassette has its safety tab removed.
WHAT TO DO: Insert a cassette with its safety tab intact. Or cover the safety tab hole of the cassette with adhesive tape and re-insert it. ☞ p.15.

- "TIMER" blinks for 10 seconds and the Timer Standby mode is cancelled.

WHY: There are no preset programs in memory, or they have all been incorrectly preset.
WHAT TO DO: Check the programmed data and re-program it as necessary. Press TIMER again.

Other Indications

- "TIMER" steady lit (with clock display).

WHY: The recorder is in the Timer Standby mode. This is the normal display you should see when you press the TIMER button.

- " ○ " and "TIMER" steady lit.

WHY: Normal display while timer-recording is in progress.

- The cassette was ejected, with power off and "TIMER" and "[oo]" are blinking.

WHY: This means that the end of the tape was reached while timer-recording was in progress. Therefore, the preset program may not be recorded in its entirety.

- "0:00" blinking.

WHY: This means the clock must be set. It's displayed when time-keeping is terminated due to a power failure or because the recorder's power plug was pulled from the AC outlet.
WHAT TO DO: Set the clock. ☞ p.10.

- If power was interrupted, it's also likely that all preset timer programming data has been erased. Please check and re-program as necessary.

Other Functions

Counter Memory

During Playback:

1. Press DISPLAY until a counter reading appears on the display panel.
2. Press C.RESET at a point you wish to locate later.
   - The counter will read "0:00:00".
3. Press C.MEMORY.
   - The M indicator will light on the display panel.
4. When you wish to return to that point, press Stop and then Rewind.
   - The tape will rewind and stop at about "0:00:00" automatically.
5. To cancel the Counter Memory mode, press C.MEMORY again.

Next Function Memory

During Stop:

For automatic start of playback after the tape is rewound:

1. Press Rewind.
2. Press Play within 2 seconds.

For automatic power off after the tape is rewound:

1. Press Rewind.
2. Press OPERATE within 2 seconds.

For automatic timer standby after the tape is rewound:

1. Press Rewind.
2. Press TIMER within 2 seconds.

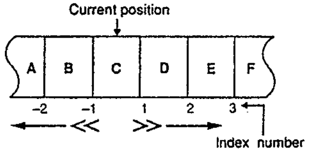
Index Search

This function gives you quick access to any one of 9 index codes in either direction. Your recorder automatically marks index codes at the beginning of each recording.

During Stop:

1. Press SEARCH << or >>. "INDEX –1" or "INDEX 1" will be displayed on the display panel and search will begin in the corresponding direction.
2. If you wish to access index codes 2 through 9, press SEARCH repeatedly until the correct index number is displayed.

Ex.: To locate the beginning of B from the current position, press SEARCH << twice.
To locate the beginning of D from the current position, press SEARCH >> once.



- When the specified index code is found, playback will start automatically.

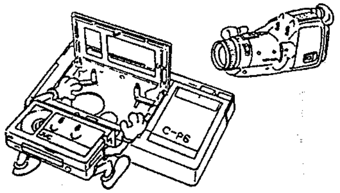
Remote A/B Code Switching

The remote control is capable of controlling two JVC video recorders independently; one set to respond to your remote control's A code control signals and another set to respond to B code control signals. The remote control is preset to send A code signals because your video recorder is initially set to respond to A code signals. You can easily modify your video recorder to respond to B code signals.

1. Unplug the recorder's power cord from the AC outlet.
2. Set the A/B CODE switch to B.
3. Plug the power cord back into the AC outlet. Do not use other remote controls at this stage.
4. Turn the recorder power on using the remote control's OPERATE button. The recorder will now only respond to B code signals.

NOTE:
Some TV sets may malfunction in response to the B mode. If this happens switch back to the A mode.

To Watch A Compact VHS Tape



Compact VHS camcorder recordings (PAL/MESECAM/NTSC) can be played on your video recorder. Place the recorded cassette into a C-P6 Cassette Adapter and it can be used like any full-sized VHS cassette.

Locking The Recorder's Controls

To avoid unwanted operation and prevent accidental recording...

1. Press the remote control's OPERATE button to turn the recorder's power off. Keep this button pressed for about 2 more seconds after the power LED indicator has gone off.
   - The Child Lock indicator (–) will appear on the display panel.
2. Child Lock is cancelled when you switch the recorder's power on with the remote's OPERATE button.
   - Pressing the TIMER button during timer-recording also cancels the Child Lock mode.

NOTES:

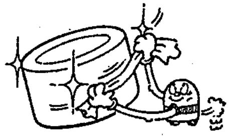
- While Child Lock is engaged, make sure you keep your remote control in a safe place inaccessible to children.
- Timer-recording is possible in the Child Lock mode. After timer-recording is done, Child Lock remains in effect.

Special Note On Head Cleaning

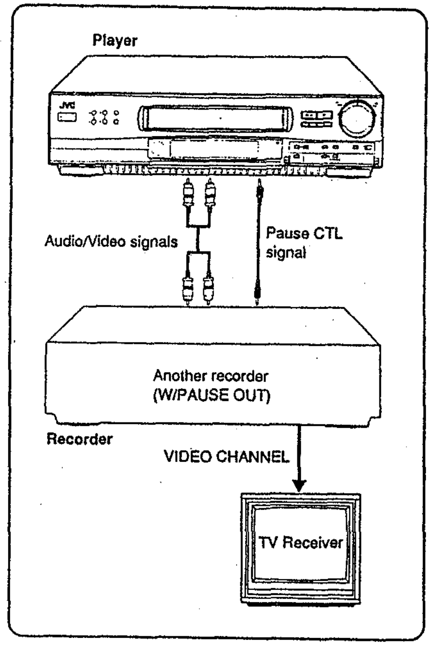
Accumulation of dirt and other particles on the video heads may cause the playback picture to become blurred or interrupted. Although this model is equipped with a built-in head cleaner which automatically cleans the heads, reducing the likelihood of dirty heads, if such troubles are encountered please consult the nearest JVC dealer.

Auto Head Cleaner

A built-in head cleaner automatically cleans the video heads and head drum whenever a tape is loaded or unloaded to reduce head clogging.



Editing



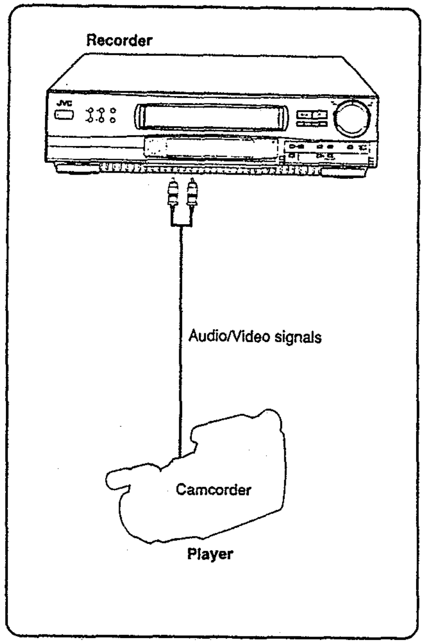
Editing To/From Another Recorder

Preparation

Connect the player's AUDIO and VIDEO OUT connectors to the recorder's AUDIO and VIDEO IN connectors.

1. **Select the recorder's external input mode.**
   - With this video recorder, press the numeric key "0". "AU" will appear instead of a channel number.
2. **Put the player in the Play mode.**
3. **Put the recorder in the Record mode.**

NOTES:
- Your video recorder can be used as either the recording deck or the source player when editing tapes. When used as the source player in combination with another video deck which is preroll-capable and equipped with a Pause Control Output terminal, your recorder's PAUSE terminal can accept preroll commands for synchronized preroll editing.
- NTSC tapes being played back in the NTSC → PAL (PLAYBACK) mode (☞ p.23) cannot be dubbed to another recorder.
- When you use your recorder as the recording deck, select the recording tape speed with the SP/LP/EP button.



Editing From A Camcorder

Preparation

Connect the camcorder's AV OUT connector to the recorder's AUDIO and VIDEO IN connectors.

1. **Select the recorder's external input mode by pressing numeric key "0". "AU" will appear instead of a channel number.**
2. **Put the camcorder in the Play mode.**
3. **Put the recorder in the Record mode.**

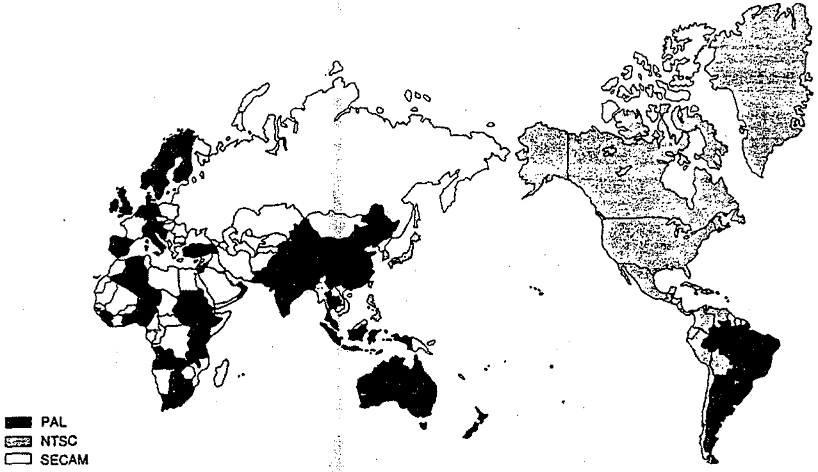
NOTE:
- If the camcorder is equipped with the Master Edit Control system, you can control the recorder using the camcorder's controls. See the camcorder's instruction manual for operating procedures.

IMPORTANT:
- To edit, both the player and the recorder must be of the same colour system.
- PAL, SECAM and NTSC camcorders can be used as a player for editing.
- For more information on multi-system compatibility, ☞ p. 21.

Information On Multi-System Compatibility

World's Colour TV Broadcasting Systems

This recorder incorporates the circuitry necessary to record or play back PAL, SECAM and NTSC signals from most TV broadcasting systems in the world.



Multi-system compatibility

Colour System	PAL			SECAM			NTSC	
Broadcasting System	B/G	D/K	I	B/G	D/K	L*1	M	—
Recording & Reception System	PAL	PAL	PAL	MESECAM	MESECAM	SECAM	NTSC 3.58	NTSC 4.43*2
Major Countries	Germany, Austria, Italy, Kuwait, U.A.E., Singapore, Malaysia, Indonesia, Thailand, India, Australia	China, Mongolia	United Kingdom, Hong Kong	Saudi Arabia, Lebanon, Iran, Iraq, Egypt, Morocco, Greece	Ivory Coast, Russia, Bulgaria, Czechoslovakia, Poland, Rumania	France	U.S.A., Canada, Japan, S. Korea, Taiwan, Philippines, Mexico	—

*1 It is not possible to receive and record SECAM L broadcasts with this recorder.

*2 In the case of NTSC 4.43 recordings, only tape-to-tape dubbing, by using a video cassette recorder capable of playing back NTSC 4.43 recordings, is possible.

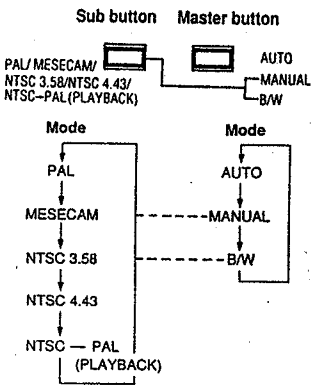
PAL, SECAM, MESECAM, And NTSC

- PAL, SECAM and NTSC are three different colour TV systems.
- MESECAM is the designation for tapes with SECAM signals that have been recorded on MESECAM-capable PAL recorders.

Information On Multi-System Compatibility (Cont'd)

Setting Of The Colour System Select Buttons

- Use these two buttons on the recorder's front panel to select the colour system. Pressing the buttons changes the modes as illustrated below. An indicator on the display panel will show which mode is selected.
- Usually the Sub button is used only when the Master button is set to MANUAL or B/W (Black & White). However, when NTSC recording or playback is being done, set the Sub button to the appropriate mode (NTSC3.58/NTSC4.43/NTSC—PAL(PLAYBACK)) even if the Master button is set to AUTO.


Sub button
Master button
PAL/ MESECAM/ NTSC 3.58/NTSC 4.43/ NTSC–PAL(PLAYBACK)
AUTO
MANUAL
B/W
Mode
PAL
MESECAM
NTSC 3.58
NTSC 4.43
NTSC — PAL (PLAYBACK)
Mode
AUTO
MANUAL
B/W

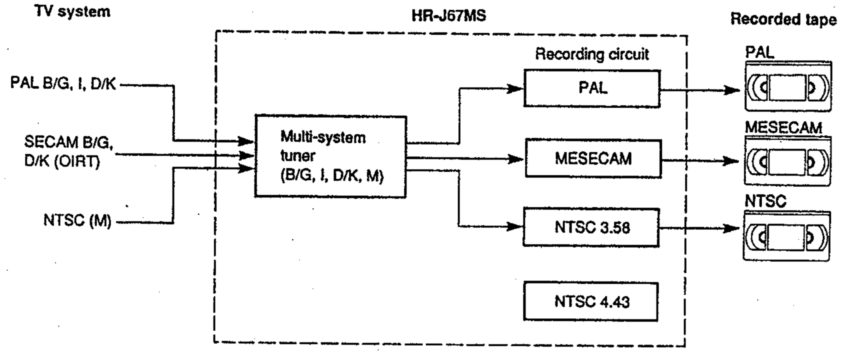
Mode Display	Description
AUTO (Colour Signal)	Usually set to this mode. This mode automatically detects and adjusts to the colour system being recorded or played back. When it does not perform properly, set the colour system manually.
MANUAL (Colour Signal)	For recording, there is a choice of 4 selectable modes; PAL/MESECAM/NTSC3.58/NTSC4.43. Use the Sub button to select the mode that matches the colour signal being received. For playback, there is an additional mode which allows NTSC tapes to be played back and viewed on PAL TVs.
B/W	Use this mode when recording or playing back a black & white programme, or for recording or playing back colour signals in black & white. Choose the appropriate Sub button setting, in the same way as with the MANUAL mode.

NOTE:

- When SECAM signals are being received in the AUTO mode, "MESECAM" will be displayed on the display panel.

Off-Air Recording

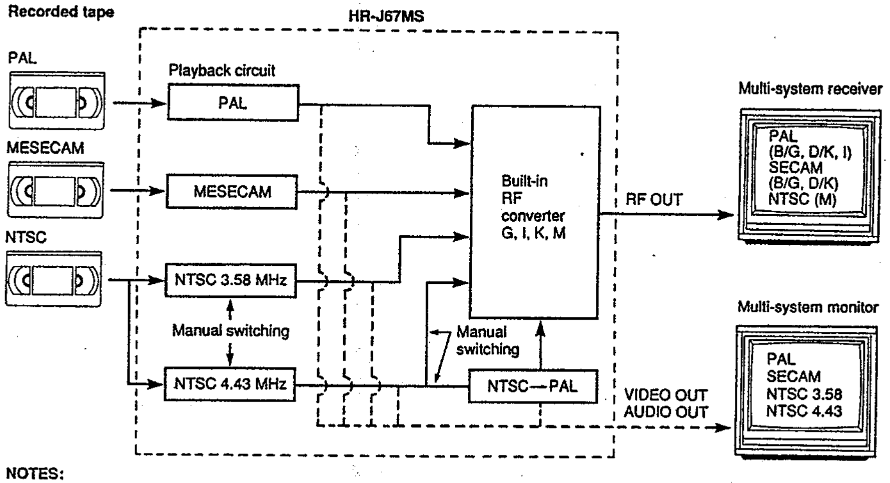
The built-in multi-system tuner is capable of receiving PAL B/G, I and D/K, and SECAM B/G and D/K, and NTSC broadcasts.


TV system
HR-J67MS
Recorded tape
Recording circuit
PAL B/G, I, D/K
SECAM B/G, D/K (OIRT)
NTSC (M)
Multi-system tuner (B/G, I, D/K, M)
PAL
MESECAM
NTSC 3.58
NTSC 4.43
PAL
MESECAM
NTSC

Note: This model does not operate in BRAZIL (PAL-M) or ARGENTINA (PAL-N).

Playback

This recorder can play back all 3 types of recorded tape.


Recorded tape
HR-J67MS
PAL
MESECAM
NTSC
Playback circuit
PAL
MESECAM
NTSC 3.58 MHz
Manual switching
NTSC 4.43 MHz
Built-in RF converter G, I, K, M
Manual switching
NTSC—PAL
RF OUT
VIDEO OUT
AUDIO OUT
Multi-system receiver
PAL (B/G, D/K, I)
SECAM (B/G, D/K)
NTSC (M)
Multi-system monitor
PAL
SECAM
NTSC 3.58
NTSC 4.43

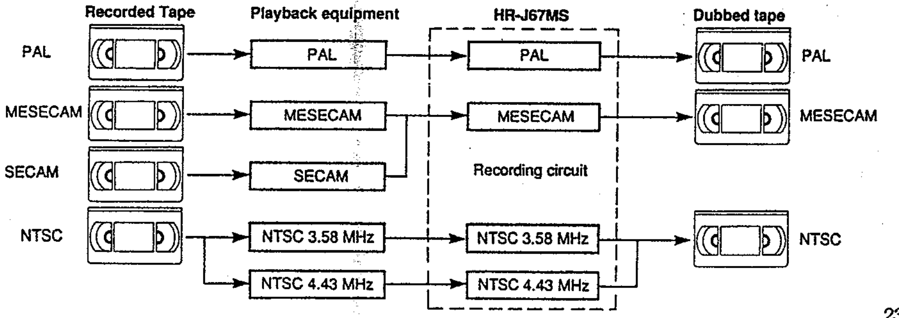
NOTES:

- When viewing NTSC tapes on a PAL TV set:
  - The picture may shrink vertically with black bars appearing at the top and bottom of the screen. This is not a malfunction on the part of the video recorder nor the TV.
  - The picture may roll up or down. This can be corrected using the V-HOLD control found on most TVs.
  - During search, still, or frame-by-frame playback, the picture will be distorted, and there may be loss of colour.

ATTENTION:
When this recorder is connected to a multi-systemTV, it may happen that no colours appear on the screen if the colour system select switch of the TV is adjusted to the AUTO position. In such a case, change the setting of the colour system select switch of the TV to the position which corresponds to the setting (G, I, K or M) of the RF converter system select switch on the rear panel of the recorder.

Tape-To-Tape Editing

There are 4 different types of recorded tape, depending on the signal recorded.


Recorded Tape
Playback equipment
HR-J67MS
Dubbed tape
PAL
MESECAM
SECAM
NTSC
PAL
MESECAM
SECAM
NTSC 3.58 MHz
NTSC 4.43 MHz
PAL
MESECAM
Recording circuit
NTSC 3.58 MHz
NTSC 4.43 MHz
PAL
MESECAM
NTSC

In Case Of Difficulty

POWER AND TAPE TRANSPORT PROBLEMS

Symptoms	Check points
No power is applied to the recorder.	■ Is the power cord disconnected? — Connect it.
Clock is functioning properly, but the recorder cannot be powered.	■ Is "TIMER" displayed on the display panel? — Press the TIMER button to extinguish the display.
Tape stops during rewind or fast-forward.	■ Is the C. MEMORY button pressed? — Press again to make "M" disappear from the display panel.

RECORDING PROBLEMS

Symptoms	Check points
Recording cannot be started.	■ Is a cassette loaded? ■ Is the safety tab on the cassette removed? — Reseal the slot with adhesive tape.
TV broadcasts cannot be recorded.	■ Has "AU" been selected? — Set to the desired channel.
Tape-to-tape editing or camera recording is not possible.	■ Is the camcorder or another video recorder correctly connected? ■ Are all necessary power switches turned ON? ■ Has "AU" been selected? — Set to "AU".
Timer recording is not possible.	■ Have you set the clock correctly and programmed the timer correctly? — Check once again. ■ Is "TIMER" displayed on the display panel? — If not, press the TIMER button to display "TIMER".

PLAYBACK PROBLEMS

Symptoms	Check points
Playback picture does not appear while the tape is running.	■ If you are using RF OUT connection, is the TV receiver's channel selector set to the correct video channel? — Set it to the RF converter channel (UHF 36). (☞ p.5) ■ If you are using AV connection, is the TV receiver set to the AV mode? — Set it to the AV mode.
Noise appears during visual search.	■ This is normal.
Noise appears during normal or slow-motion playback.	■ Is the automatic tracking mode engaged? — Try manual tracking. (☞ p.12)
Playback picture is blurred or interrupted while TV broadcasts are clear.	■ Video heads may be dirty. — Head cleaning is necessary. Consult your JVC dealer. (☞ p.19).
No sound accompanies the playback picture.	■ Is the SYSTEM switch set to the correct position? — Set it to the correct position for the TV broadcast system used in your area. (☞ p.5)

Hi-Fi AUDIO PROBLEMS

Symptoms	Check points
Breaks are noticeable in Hi-Fi audio reproduction.	■ Is the automatic tracking mode engaged? — Try manual tracking. (☞ p.12)

OTHERS

Symptoms	Check points
Whistling or howling is heard from TV during camera recording.	■ Move camcorder or camera's microphone away from TV or reduce TV sound volume.
Channel cannot be switched.	■ Is recording in progress? — Press the Pause/Slow button, change the channel, and press the Play button.
Remote control does not function.	■ Are the batteries discharged? — Replace with new ones. ■ Is the A/B code switch set to the appropriate position? — Check once again.
"Snowy picture" on screen when viewing TV programmes while recording another programme.	■ Is the VIDEO indicator lit on the display panel? — Press the TV/VIDEO button so that the indicator extinguishes.

Precautions

Please follow these safety precautions. Not doing so may result in damage to the recorder, remote control, or video cassette.

- **Avoid extreme heat and direct sunlight.**
- **Avoid extreme cold.**
- **Avoid extreme humidity.**
- **Avoid dust.**
- **Avoid places subject to vibrations.**
- **Avoid strong magnetic fields.**
- **Do not block the recorder's ventilation openings.**
- **Do not place anything heavy on the recorder or remote control.**
- **Do not place anything which might spill on top of the recorder or remote control.**
- **Do not place the recorder on cushions, pillows, or thick carpeting.**
- **Use the recorder in a stable, horizontal position only.**

When transporting

- ■ Be sure to remove cassette from recorder before packing.
- ■ Avoid violent shocks to the recorder during packing and transport.

Beware of moisture condensation

Moisture in the air will condense on the recorder when you move it from a cold place to a warm place, or under extremely humid conditions — just as water droplets form on the surface of a glass filled with cold liquid. Moisture condensation on the head drum will cause damage to the tape. In conditions where condensation may occur, keep the recorder's power turned on for a few hours to let the moisture dry.

Place cassettes in cassette cases and store vertically.

ATTENTION:

This recorder contains microcomputers. External electronic noise or interference could cause malfunctioning. In such cases, switch the power off and unplug the power cord. Then plug it in again and switch on. Take out the cassette. After checking the cassette, operate the unit as usual.

SERVICE AUDIO-VIDEO
Mirosław Bogórski
ul. Kraszewskiego 31
05-800 PRUSZKÓW
Tel. 728-37-19

SECTION 1
DISASSEMBLY

1.1 DISASSEMBLY

1.1.1 Top cover

1. Take out 4 screwsⒶand 1 screwⒷ.
2. To remove the top cover, slide in direction of arrow and lift away.

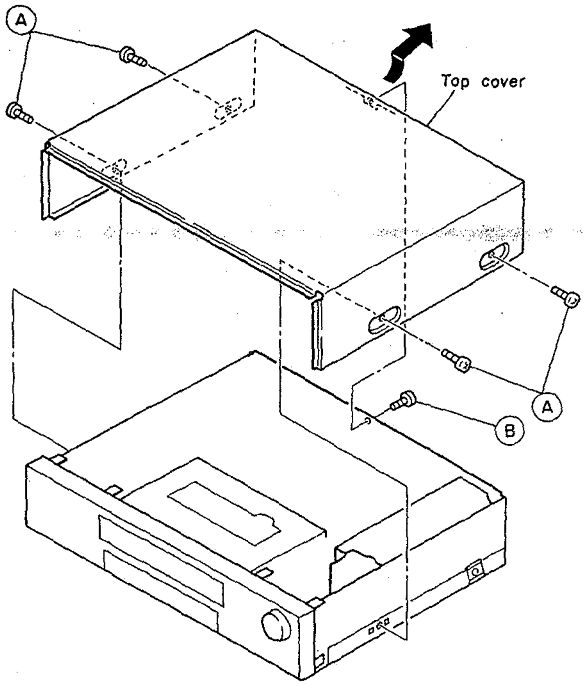


Fig. 1-1-1 Top cover

1.1.2 Front panel assembly

1. Remove the top cover.
2. Carefully disengage 4 tabsⓐof the front panel assembly from the upper side of the chassis.
3. Pull the front panel assembly forward you to disengage 5 tabs ⓑ of the front panel assembly from the bottom of the chassis.
4. Disconnect connector ⓒ from the SHUTTLE assembly of the front panel assembly, then remove the front panel assembly.

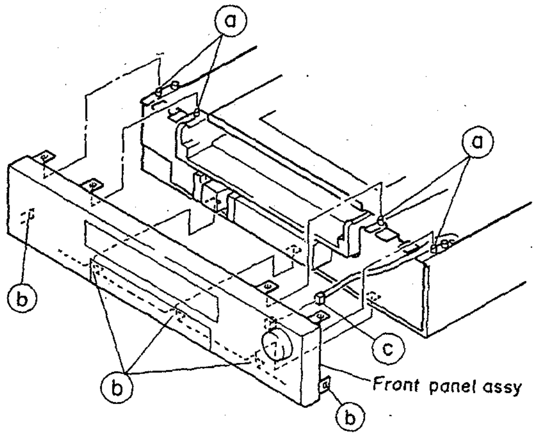


Fig. 1-1-2 Front panel assembly

1.1.3 Bottom cover

1. Remove the top cover, then overturn the set.
2. Take out 3 screws Ⓒ, then remove the bottom cover in the direction of arrow and lift away.
3. Disengage the 2 earth plates ⓐ.

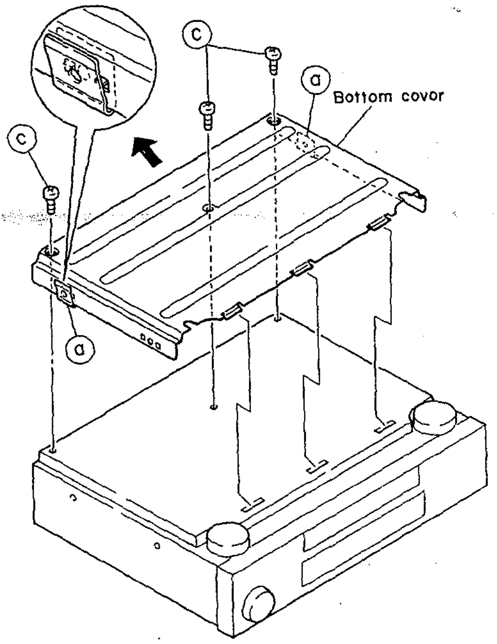


Fig. 1-1-3 Bottom cover

1.1.4 SWITCHING REGULATOR *board assembly*

1. Remove the top cover.
2. Take out 3 screwsⒹand 2 screwsⒺ.
3. Remove the SWITCHING REGULATOR board assembly.

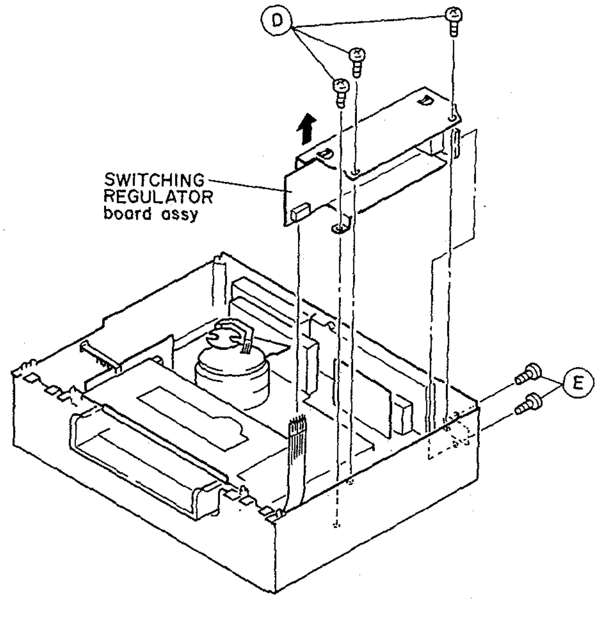


Fig. 1-1-4 SWITCHING REGULATOR board assembly

1.1.5 DISPLAY/SW & SW/JACK board assemblies

1. Remove the top cover and front panel.
2. Disengage 6 claws ⓐ and 4 claws ⓑ from the chassis.
3. Disconnect connector CN1 from the DISPLAY/SW board assembly.
4. Disconnect 3 connectors CN4, CN5 and CN6 from the SW/JACK board assembly.
5. Remove the DISPLAY/SW & SW/JACK board assemblies in direction of arrow.

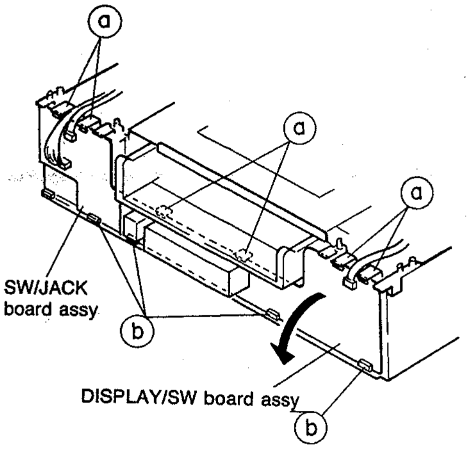

a
a
a
SW/JACK board assy
b
DISPLAY/SW board assy
b

Fig. 1-1-5 DISPLAY/SW & SW/JACK board assemblies

1.1.6 Cassette housing assembly

1. Remove the top cover, front panel.
2. Take out 4 screws Ⓕ and 2 screws Ⓜ.
3. Remove the cassette housing assembly in direction of arrow.

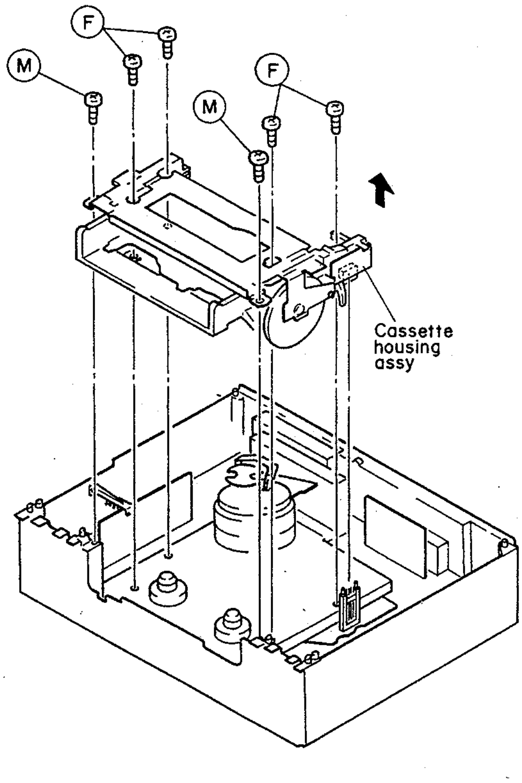

F
M
F
M
Cassette housing assy

Fig. 1-1-6 Cassette housing assembly

1.1.7 PRE/REC board assembly

1. Remove the top cover.
2. Take out 2 screws Ⓖ.
3. Disconnect connector CN502 from the PRE/REC board assembly.
4. Remove the PRE/REC board assembly with the shield in direction of arrow.

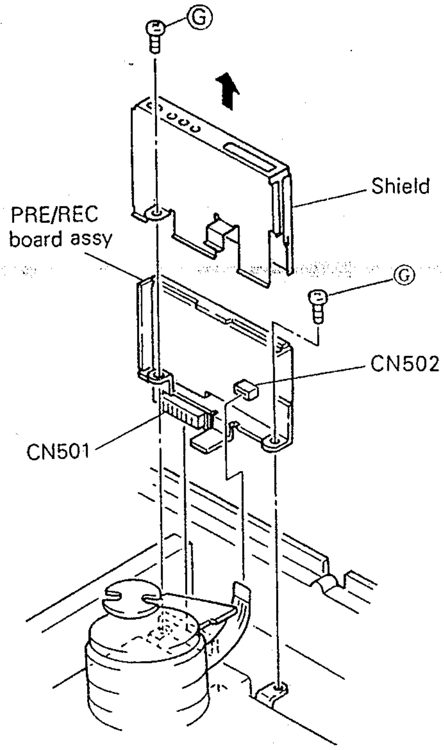

G
Shield
PRE/REC board assy
G
CN502
CN501

Fig. 1-1-7 PRE/REC board assembly

1.1.8 Drum assembly

1. Remove the top cover.
2. Take out 1 screw Ⓠ, then remove the earth plate.
3. Remove the inertia plate, washer and head cleaner assembly, then disconnect a connector.
4. Take out 3 screws Ⓛ, then remove the drum assembly.

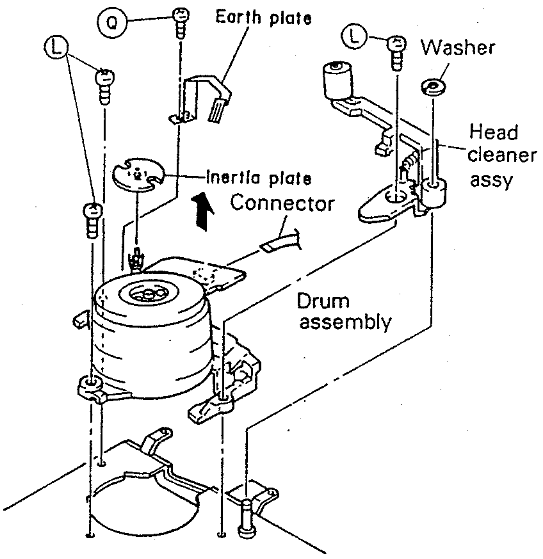

Q
Earth plate
L
L
Washer
Head cleaner assy
Inertia plate
Connector
Drum assembly

Fig. 1-1-8 Drum assembly

1.1.9 Cassette housing installation

Note: *Observe the mechanical phase and position (see figure)when installing the cassette housing assembly. If these are incorrect, the system will not operate properly even when tape is inserted.*

1. Check that the marks of the control cam and pinch roller cam are aligned. If necessary, turn the worm clutch by hand to adjust the position.

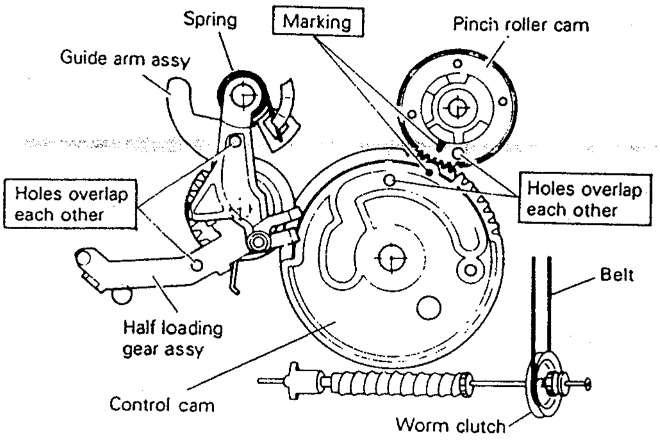

Spring
Marking
Pinch roller cam
Guide arm assy
Holes overlap each other
Holes overlap each other
Belt
Half loading gear assy
Control cam
Worm clutch

Fig. 1-1-9 Control cam and pinch roller cam position

2. Confirm that the clutch of the worm clutch assembly is locked. If necessary, engage the locked.

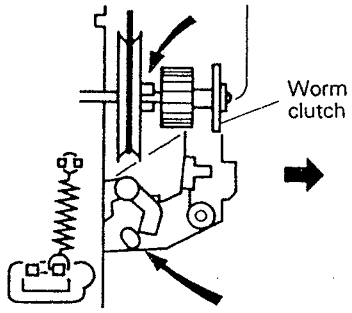

Worm clutch

Fig. 1-1-10(a) Not locked

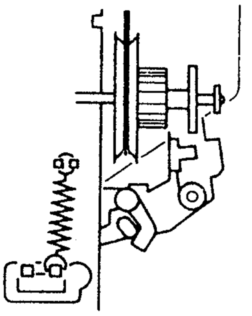


Fig. 1-1-10(b) Lock engaged

3. Install the front panel as shown in Fig. 1-1-11 and re-engage the tabs. Supply power and use a spare cassette to check for normal loading and eject operations.

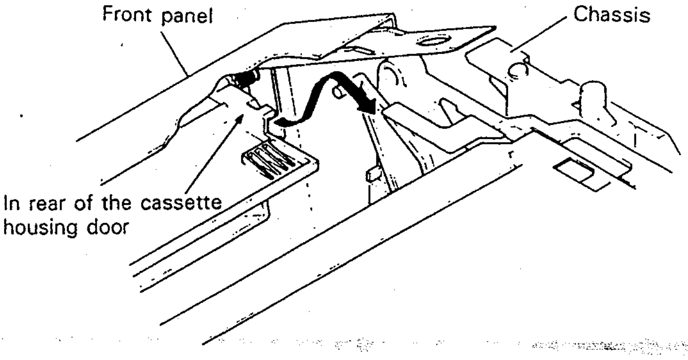

Front panel
Chassis
In rear of the cassette housing door

Fig. 1-1-11 Cassette housing door

1.1.10 Main deck assembly

1. Remove the top cover, front panel and cassette housing assembly.
2. Take out 2 screws Ⓗ and remove the mecha bracket.
3. Take out 1 screw Ⓙ and 2 screws Ⓚ, then disengage 3 connectors ⓐ from the chassis.
4. Remove the main deck assembly in direction of arrow.

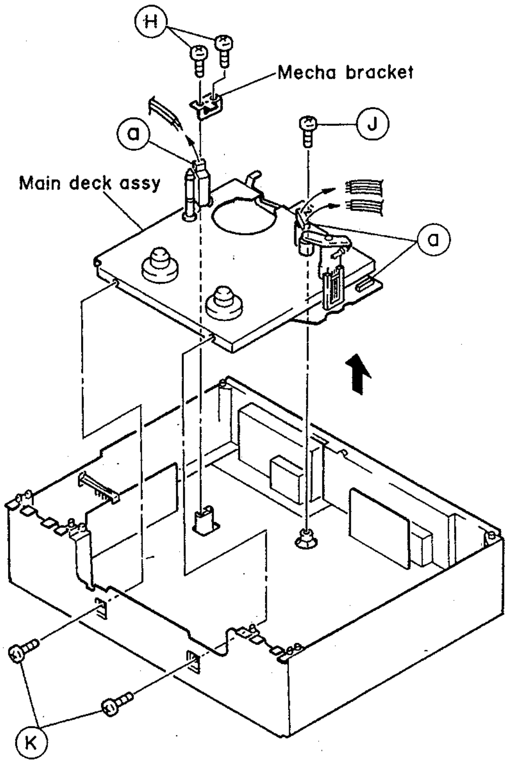
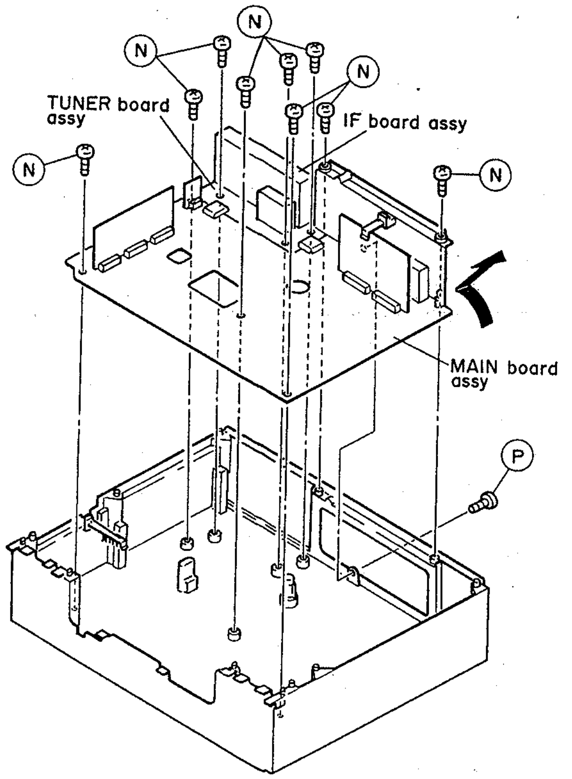

H
Mecha bracket
a
J
Main deck assy
a
K

Fig. 1-1-12 Main deck assembly

1.1.11 MAIN and TUNER/IF board assemblies

1. Remove the top cover.
2. Take out 9 screws Ⓝ and 1 screw Ⓟ from the chassis.
3. Remove the MAIN and TUNER/IF board assemblies in the direction of arrow.

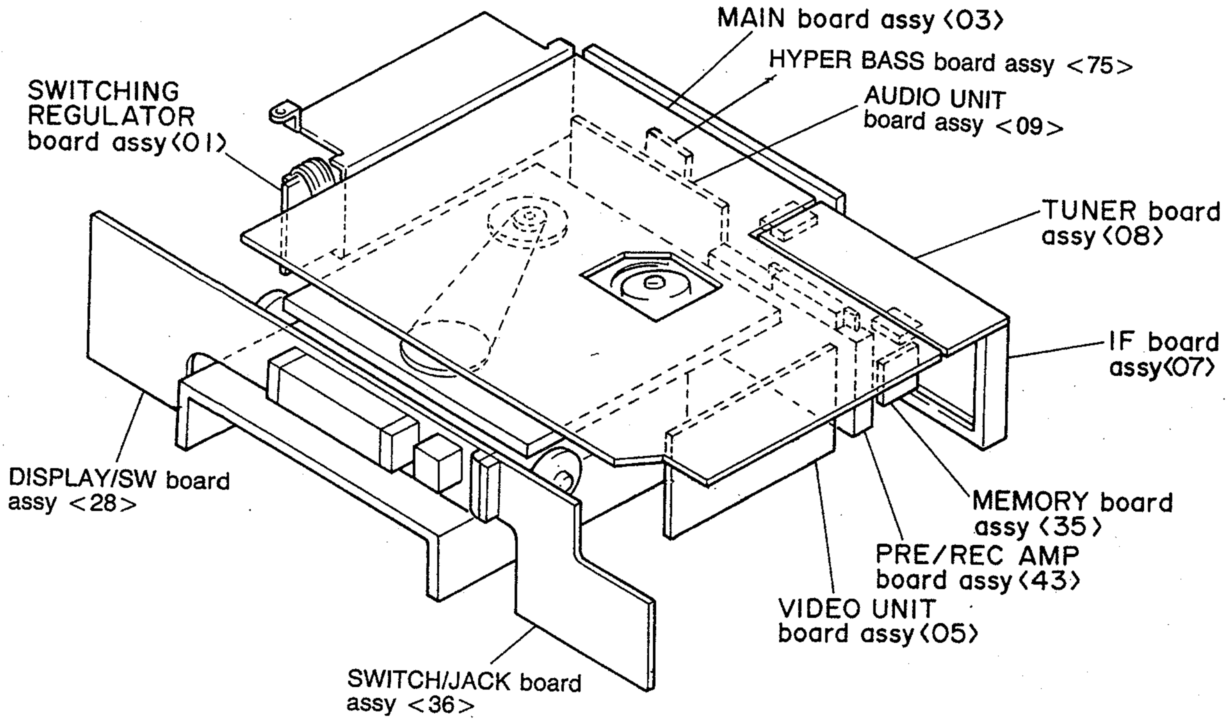


N
N
N
N
N
N
TUNER board assy
IF board assy
MAIN board assy
P

Fig. 1-1-13 Main and TUNER/IF board assemblies

1.1.12 Service position

1. Remove the mechanism assembly (including cassette housing assembly), MAIN board assembly, TUNER/IF board assembly, SWITCHING REGULATOR assembly and DISPLAY & SWITCH board assemblies out of the chassis.
2. Re-connect all connectors, then overturn the mechanism assembly and board assemblies, as shown in fig. 1-1-14.
3. Check the pattern side of main board assembly.



MAIN board assy <03>
HYPER BASS board assy <75>
AUDIO UNIT board assy <09>
SWITCHING REGULATOR board assy <01>
TUNER board assy <08>
IF board assy <07>
DISPLAY/SW board assy <28>
MEMORY board assy <35>
PRE/REC AMP board assy <43>
VIDEO UNIT board assy <05>
SWITCH/JACK board assy <36>

Fig. 1-1-14 Service position

SECTION 2
MECHANISM ADJUSTMENT

2.1 PREPARATION

2.1.1 Precautions

1) Disconnect VCR from AC power before soldering.
2) Avoid imparting stress to wires when disengaging connectors.
3) Determine and correct the cause of difficulty before proceeding to adjustments. Do not disturb settings unnecessarily.
4) Use care not to damage tabs, claws, etc. during repairs.
5) Install the cassette housing assembly only when the mechanism is in the Eject or Stop mode position. In the Eject mode, the internal holder of the housing is fully raised. This is fully lowered in the Stop mode.
6) When installing the front panel assembly, be sure to engage the housing door with the door lever of the cassette housing assembly. If this is omitted, the door will not open at Eject and the cassette cannot be removed.
   See Sec.1 DISASSEMBLY.

2.1.2 Check without cassette housing

Mechanism operations can be observed easily by removing the cassette housing assembly. Note the following.

1) Disable the photo transistor sensor (END SENSOR) on the main-deck by applying an opaque cover.
2) Connect pins 2 and 3 of Main board connector CN601.
3) Select the desired modes with the operation buttons. However, notice that without tape, setting for the reverse direction modes produces the Stop mode after a few seconds due to absence of the reel sensor output.

2.1.3 Manual removal of loaded tape

In event of failure which leaves the tape in the loaded position, remove it by the following procedure.

1) Take off the top cover and main deck assy in order to wind the tape on the reel.
   See Sec.1 DISASSEMBLY.
2) Turn the mode motor belt by hand in the unloading direction to return the loading posts to the stop position, refer Fig. 2-1-1.

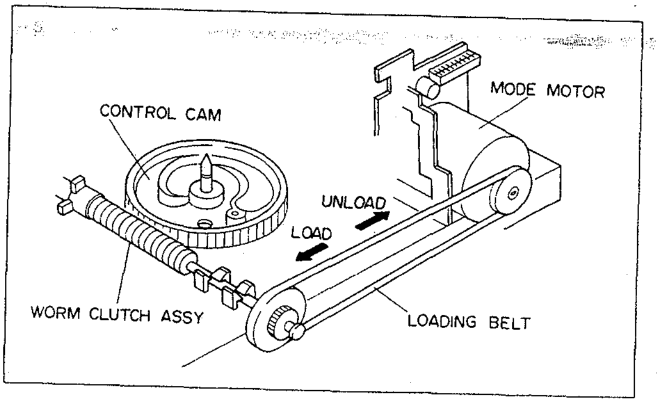


Fig. 2-1-1

3) From the bottom, turn the clutch unit by hand to wind the slackened tape onto the reel.

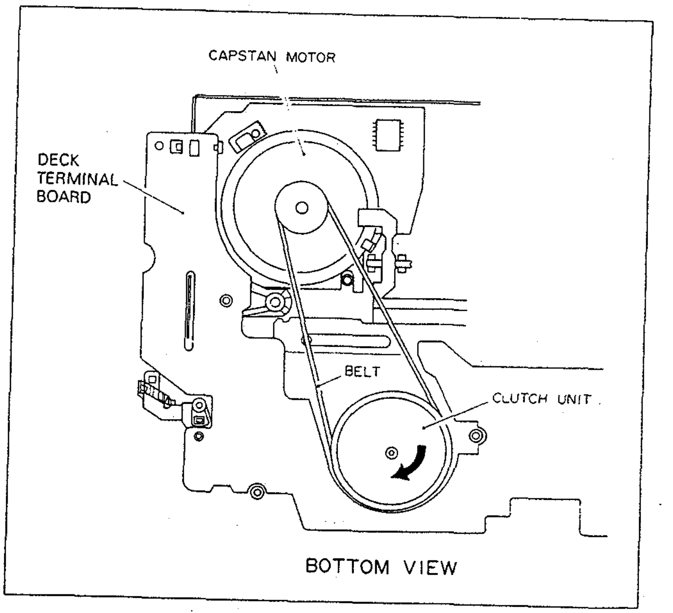


Fig. 2-1-2

4) Ture the mode motor further to where the cassette holder begins moving in the unloading direction, then remove the cassette tape.

Note: *Turn the mode motor and clutch unit alternately in order to avoid damaging the tape. It is important to avoid scratching the tape in the mechanism.*

2.1.4 Test equipment

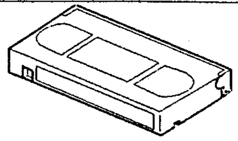
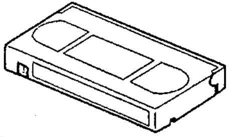
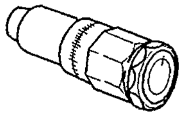
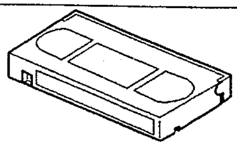
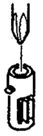
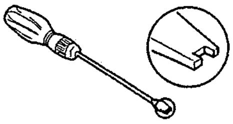
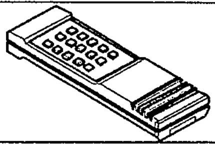
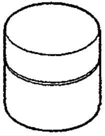
Alignment tape (SP) MH-2	Alignment tape (LP) MH-2L	Torque gauge PUJ48075-2	Back tension cassette gauge PUJ48076-2
			
A/C head positioning tool PTU94010	Roller driver PTU94002	Presetting unit PTU94008	Grease PTU94014A
			

Table 2-1-1

2.2 MAIN MECHANISM PARTS

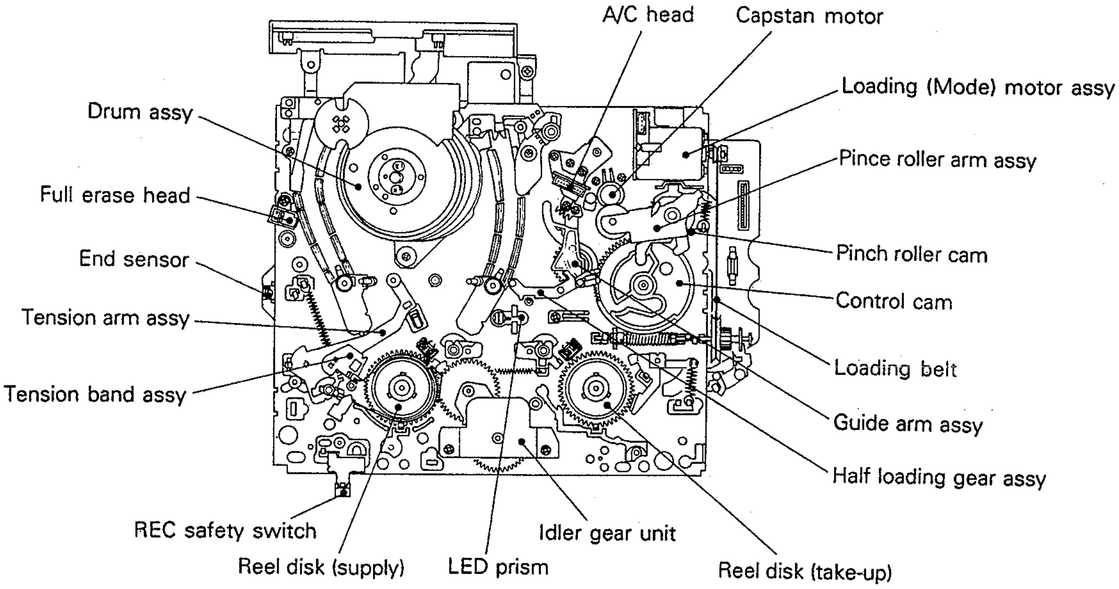

A/C head
Capstan motor
Loading (Mode) motor assy
Drum assy
Pince roller arm assy
Full erase head
Pinch roller cam
End sensor
Control cam
Tension arm assy
Loading belt
Guide arm assy
Tension band assy
Half loading gear assy
REC safety switch
Idler gear unit
Reel disk (supply)
LED prism
Reel disk (take-up)

Fig. 2-2-1 Top view of main-deck

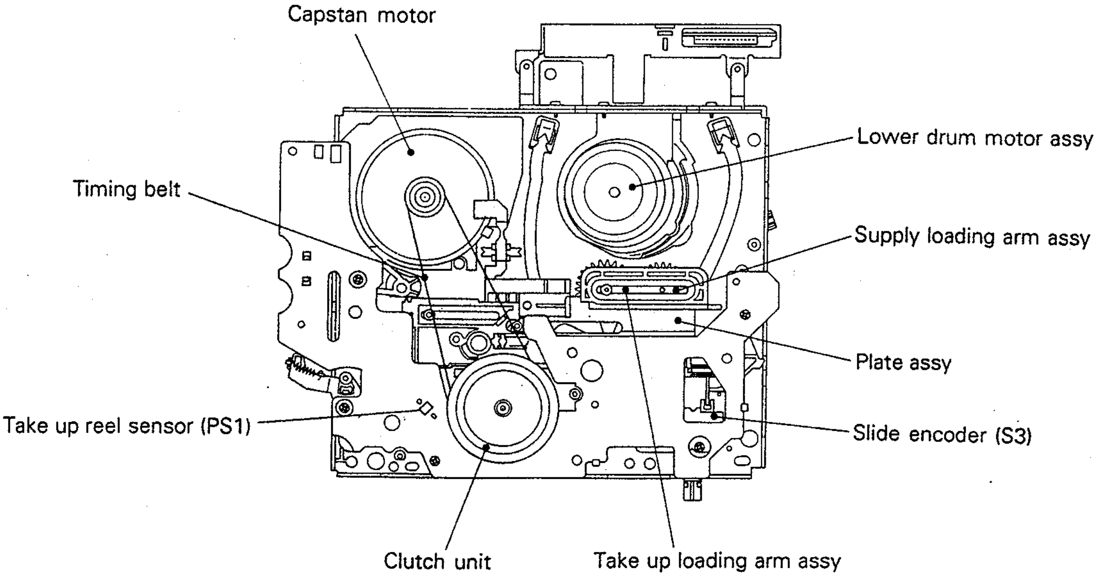

Capstan motor
Lower drum motor assy
Timing belt
Supply loading arm assy
Plate assy
Take up reel sensor (PS1)
Slide encoder (S3)
Clutch unit
Take up loading arm assy

Fig. 2-2-2 Bottom view of main-deck

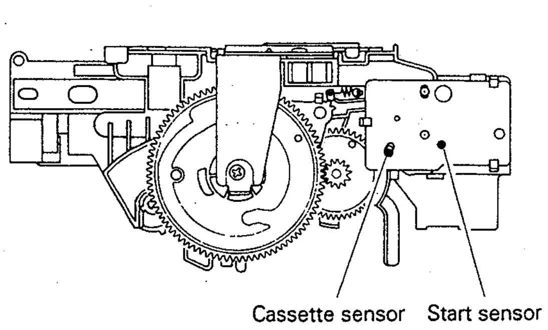


Fig. 2-2-3 Side view of cassette housing

2.2.1 Cleaning

Periodic cleaning of the tape transport system is desirable, but ordinarily not feasible in practice. Therefore, perform cleaning when a set is brought in for repairs or maintenance. Contamination of the video heads, tape guides and brushes can detract from playback picture quality and in extreme cases, even damage the tape. For cleaning, use a fine-mesh cotton cloth (about the texture of a white dress-shirt) moistened in alcohol.

- To clean the video heads, press the moistened cloth gently against the upper drum with finger-tip and turn the drum by hand.
- Do not use a vertical stroke, as this may damage the heads.

2.2.2 Lubrication

Oil and grease do not normally require periodic replenshing. Apply only when replacing lubricated parts (also clean and replace lubrication of mating parts if soiled).
For parts and points to apply oil and grease, refer to the exploded views of the mechanism assembly.
Before oiling, clean with alcohol.
Apply one or two drops of oil.
Avoid excess oil.

1) Table 2-2-1 indicates the oil and grease used in this set. Use these or recommended locally available equivalents.

Category	Part No.
Oil	COSMO-HV56
Grease	KANTO-G-31KAV

Table 2-2-1

2) Grease is not required for a replacement cassette housing assembly, as this has been applied at the factory.

Note: *Stir grease that has been stored for an extended period.*

2.3 INSPECTION AND MAINTENANCE

This product employs rotary and moving parts which wear out in the course of usage. Periodic inspection, cleaning, lubrication and maintenance are therefore important for ensuring maximum performance. Worn parts must also be replaced at when required.

2.3.1 Suggested servicing schedule for main components

The following table indicates the suggested period for such service measures as cleaning, lubrication and replacement. In practice, the indicated periods will vary widely according to environmental and usage conditions. However, the indicated components should be inspected when a set is brought for service and the maintenance work performed if necessary.
Also note that rubber parts may deform in time, even if the set is not used.

System	Parts Name	Operation hours						
		250	500	750	1000	1250	1500	2000
Tape Transport	Upper drum assy	★	★	★	○	★	○	○
	A/C head	★			○			○
	Pinch roller arm assy	★	★	★	★	★	★	★
	Full erase head							
	Tension arm assy							
	Lower drum assy							
	Capstan motor (Shaft)							
	Half loading gear assy							
	Guide arm assy							
Drive	Capstan motor							○
	Loading belt			○				○
	Mode motor assy			○				○
	Reel disk (Supply)			○				○
	Reel disk (Take-up)			○				○
	Clutch assy			○				○
	Worm clutch assy							○
	Plate assy							○
Others	Brush assy			○				○
	Tension band assy			○				○

★ : Cleaning
○ : Inspection or Replacement if necessary

Table 2-3-1

2.4 MAIN PARTS REPLACEMENT AND ADJUSTMENT

2.4.1 Stator assembly

1) Take out 1 screw (D), then remove the Earth Plate.
2) Take out 2 screws (A).
3) Raise the Stator Assembly in the direction indicated by the arrow to remove it (also remove the Inertia Roller).
4) Remove the flat cable.
5) To reinstall, first secure the flat cable, then insert 2 screws (A).
6) After reinstalling, be sure to perform switching point adjustment.

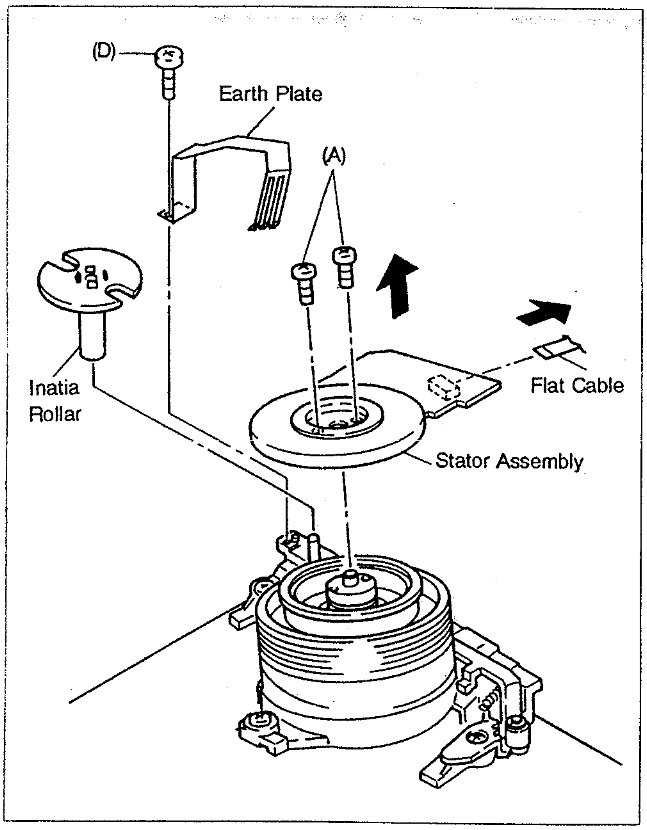


Fig. 2-4-1

2.4.2 Rotor assembly

1) Remove the Eart Plate and Stator Assembly.
2) Take out 2 screws (B) and remove the Rotor Assembly.

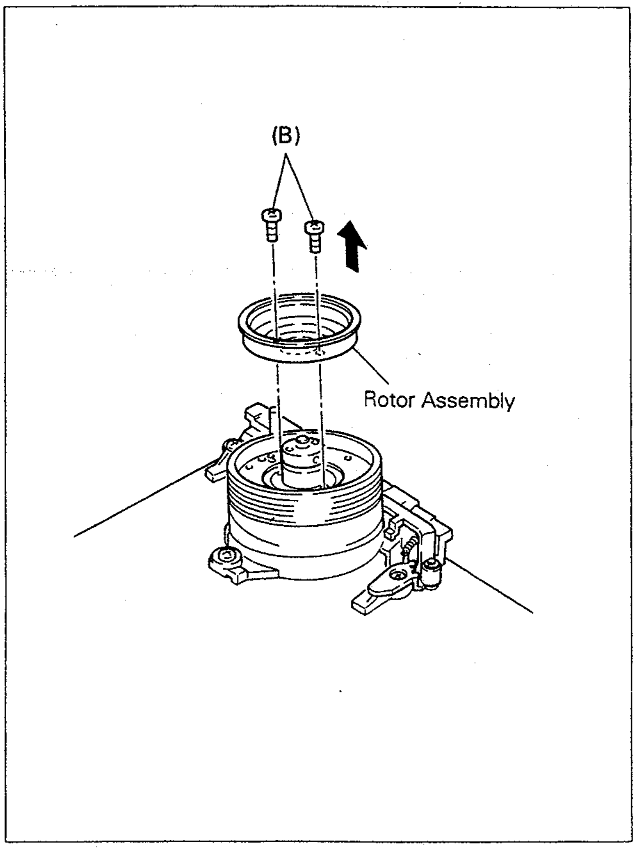


Fig. 2-4-2

Note: *A normal picture will not be obtained unless the phase is properly aligned when installing the Rotor Assembly. Also note there are three types of Rotors.*

3) Align the Upper Drum and Rotor Assembly phase as indicated in Fig. 2-4-3.

4) Overlap holes (a) of the Upper Drum with holes (b) of the Rotor Assembly (align holes in 3 locations) and secure with 2 screws (B) (see Fig. 2-4-2).

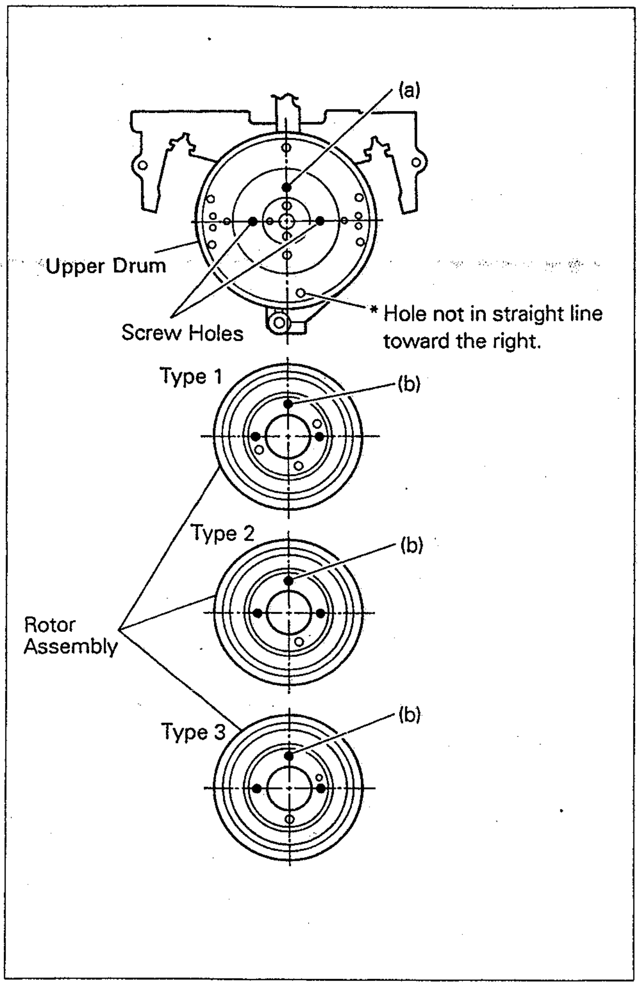

(a)
Upper Drum
Screw Holes
* Hole not in straight line toward the right.
Type 1
(b)
Type 2
(b)
Rotor Assembly
Type 3
(b)

Fig. 2-4-3

2.4.3 Drum subassembly

1) Remove the Washer and Head Cleaner Assembly.

2) Disengage the PRE/REC AMP board connector and flat cable.

3) Take out 3 screws (C) and remove the Drum Subassembly.

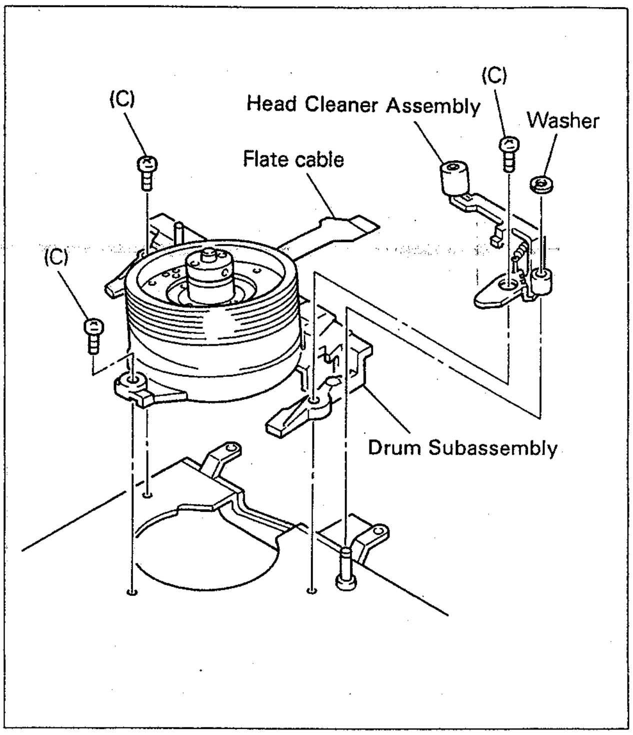

(C)
Head Cleaner Assembly
(C)
Washer
Flate cable
(C)
Drum Subassembly

Fig. 2-4-4

2.4.4 Upper Drum assembly

1. Removal

1) Remove the Stator and Rotor Assemblies.
2) Use a 1.5 mm hexagonal wrench to loosen the Collar Assembly screw and remove the Collar Assembly.
3) Remove the Upper Drum Assembly and use tweezers to remove the Washer.

Note: *As grease is applied to the Brush, use care to avoid contamination by dirt or other foreign matter. If the Brush is replaced, use care regarding top and bottom direction and be sure to apply the specified grease (PTU94014A) to the contact sections (2 locations).*

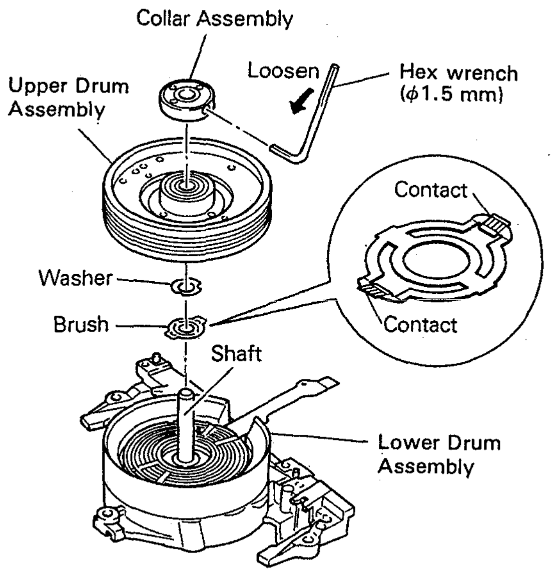

Collar Assembly
Upper Drum Assembly
Loosen
Hex wrench (ϕ1.5 mm)
Contact
Washer
Brush
Contact
Shaft
Lower Drum Assembly

Fig. 2-4-5

2. Installation

1) Use an air brush to clean the Lower Drum Assembly and the coil section of the new Upper Drum Assembly.
2) Set a new Washer and Upper Drum Assembly on the Drum shaft (see Fig. 2-4-5).

Note: *Be sure to use the new Washer supplied with the replacement Upper Drum Assembly.*

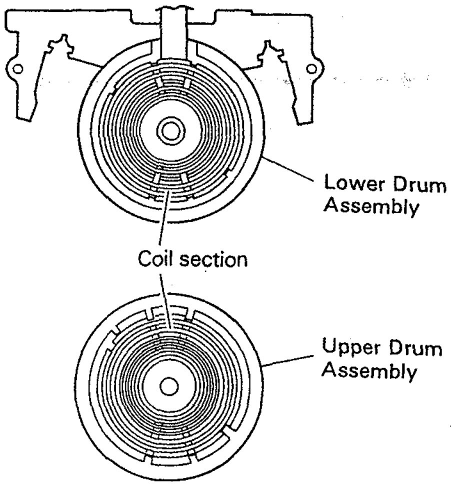

Lower Drum Assembly
Coil section
Upper Drum Assembly

Fig. 2-4-6

3) Note the top and bottom of the Collar Assembly and determine the position as indicated in Fig. 2-4-7.

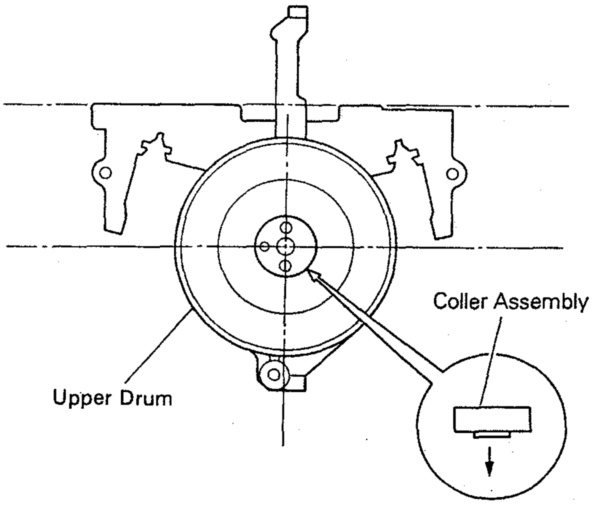

Coller Assembly
Upper Drum

Fig. 2-4-7

4) While pressing the Collar Assembly evenly from above with the fingertips, secure the hexagonal screw.

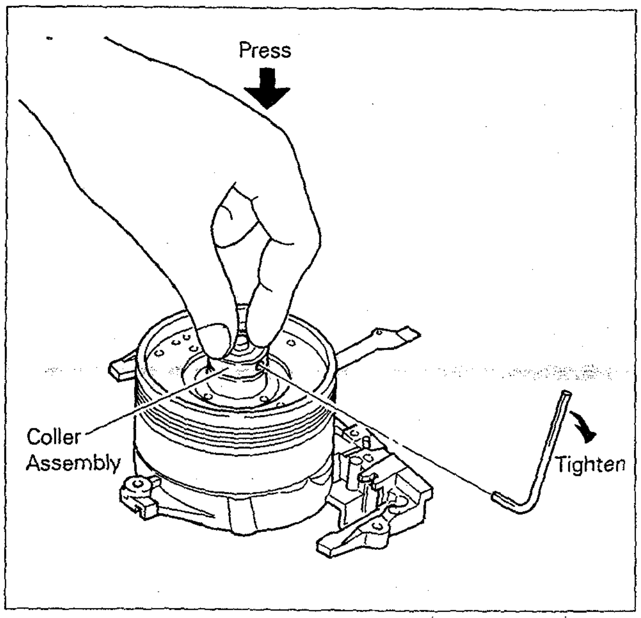

Press
Coller Assembly
Tighten

Fig. 2-4-8

5) After installing, gently turn the Upper Drum by hand and confirm normal rotation.
6) Install the Rotor and Stator Assemblies.
7) Clean the Upper and Lower Drum Assemblies and perform the following adjustments;

- Switching Point Adjustment
- Interchangeability Adjustment (be sure to check LP mode)
- Recording color level Adjustment

2.4.5 Tension arm positioning

1) Remove the cassette housing, set the playback mode.
   (Refer to 2.1.2 Check without cassette housing)
2) Turn the eccentric adjust pin to position the mark of the chassis with the tension arm tip as shown Fig. 2-4-9.

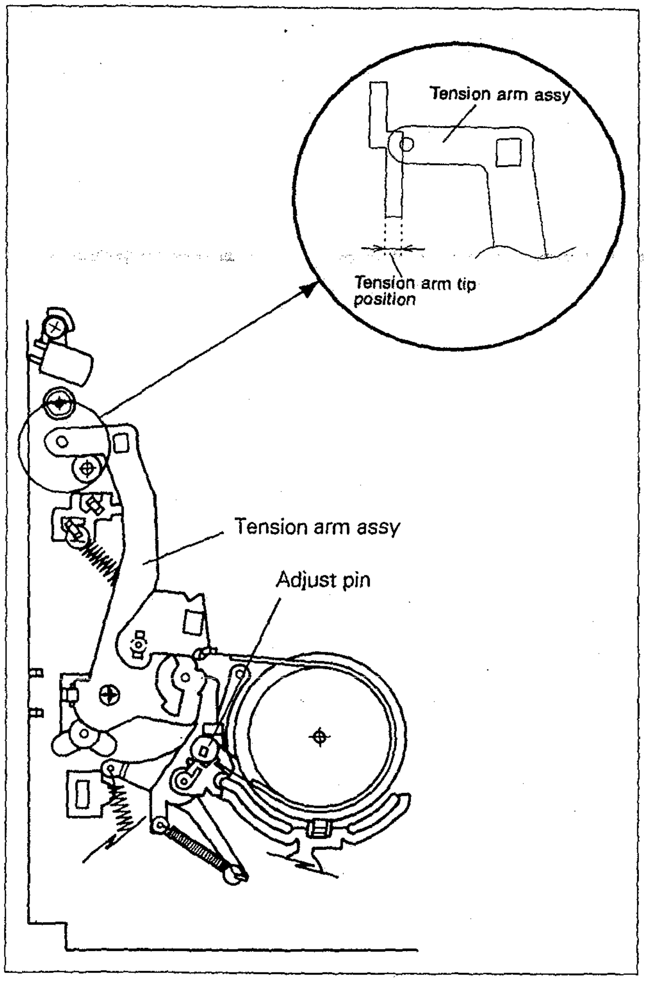

Tension arm assy
Tension arm tip position
Tension arm assy
Adjust pin

Fig. 2-4-9

Note: *Normally, if the tension post position is properly adjusted, the back tension will assume the correct value. Use the back tension cassette gauge and confirm playback tension is 35 g-cm to 48 g-cm (13.8 g-inch to 18.9 g-inch).*

2.4.6 Pinch roller cam position

1) Set the mechanism to the eject mode (cassette holder is locked in eject position).
2) Install the pinch roller cam so the largest hole near the gear teeth is aligned with the hole on the chassis.
3) Set the control cam on the deck with the hole in the groove aligned with the hole on the chassis. Observe that the small hole on the control cam and the mark on the pinch roller cam are aligned. (If the control cam does not fit readily, shift the loading arm and plate assembly within the range of mechanical play.)
4) Install the half-loading gear assembly with the hole aligned with the hole on the chassis. Secure with split washer.
5) Install the guide arm assembly with the hole aligned with hole on the chassis. Engage the spring properly.

Note: *This is the correct mechanical alignment to install the cassette housing. The cassette housing should also be in the eject position.*

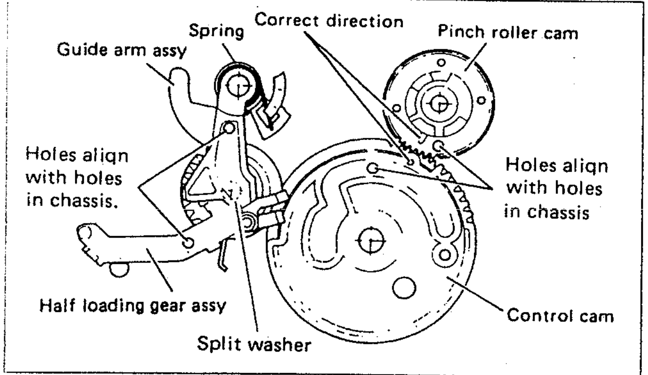

Correct direction
Spring
Guide arm assy
Pinch roller cam
Holes align with holes in chassis.
Holes align with holes in chassis
Half loading gear assy
Control cam
Split washer

Fig. 2-4-10

2.4.7 Audio/control head height

1) Adjust the 3 screws (screw ①,②,③ in Fig. 2-5-1) to set the audio/control head height to 6.6 mm (0.26 in). Adjust all screws equally.
2) Perform interchangeability adjustments to obtain the specified control pulse and audio signal levels.

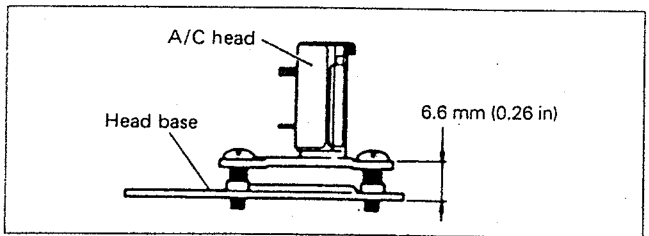

A/C head
Head base
6.6 mm (0.26 in)

Fig. 2-4-11

Notes:
- *It is very important to correctly adjust the control pulse and audio signal in addition to the mechanical tape path.*
- *Perform interchangeability adjustments after electrical adjustments.*

2.4.8 Loading arm and plate assembly position

1) Set for Eject mode and remove the deck terminal board.
2) Check that the preset hole of the plate assembly is in the preset position. Temporarily insert a 3 mm (0.12 in) screw to hold the position.
3) By hand, hold the loading arms in the unloading (inner) position and set the plate assembly from above.
4) Install Red and White split washers. Remove temporary screw.
5) Move the mode motor belt by hand and confirm mechanism operation.

Note: *Observe that the brake assembly pin is engaged with the plate assembly groove.*

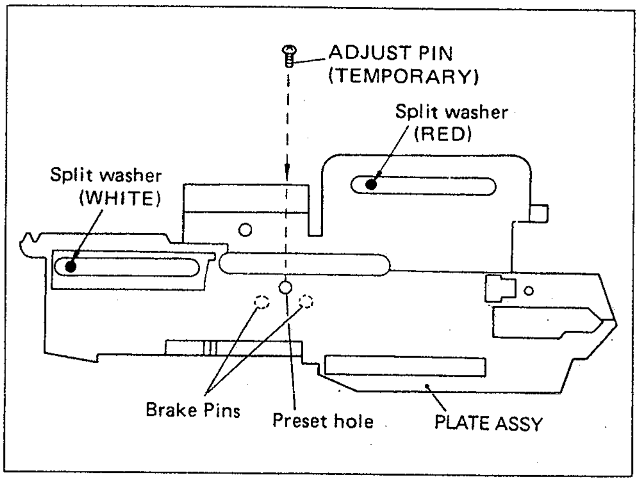

ADJUST PIN (TEMPORARY)
Split washer (RED)
Split washer (WHITE)
Brake Pins
Preset hole
PLATE ASSY

Fig. 2-4-12

2.4.9 Reel disk height

1) Measure the height of the reel disk above the main chassis.
2) Add or remove washers at the bottom of the reel disk to adjust for 12 mm (0.47 in). See Fig. 2-4-13.

Note: *This adjustment is normally not needed. Perform after replacing the reel disk.*

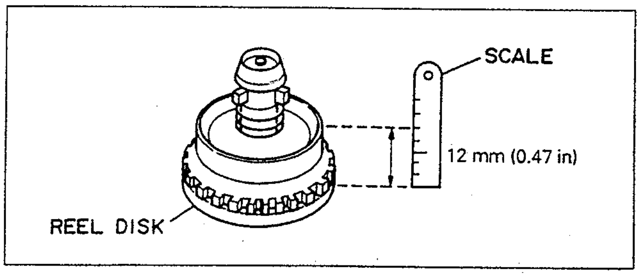

SCALE
12 mm (0.47 in)
REEL DISK

Fig. 2-4-13

2.5 TAPE INTERCHANGEABILITY ADJUSTMENT

Note: *This adjustment is extremely important. However, it is normally not required during routine service. Perform only after replacing major components (A/C head, drum assembly, etc.).*

2.5.1 Height and azimuth adjustment of A/C head

1) Connect the oscilloscope to the audio output jack on the rear of the deck.
2) Play back the stairstep portion (6 kHz, Mono) of the alignment tape.
3) Adjust Black Screw ② on the head base in Fig. 2-5-1 so that the output level is at a maximum.
4) Readjust Screw ① shown in Fig. 2-5-1 for maximum output.

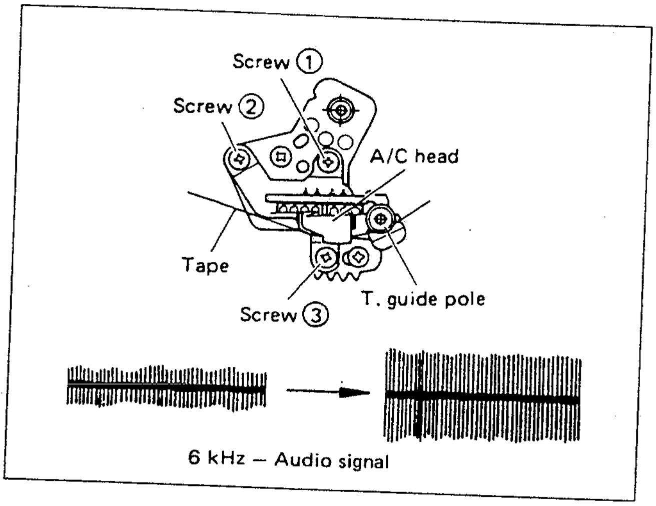


Fig. 2-5-1

2.5.2 Horizontal Position adjustment of A/C head

1) Play back the stairstep portion of the alignment tape.
2) Connect the oscilloscope to TP506 (PB FM) on the PRE/REC AMP board. Use TP511 (DRUM FF) as a trigger. Confirm that the RF envelope appears, as in Fig. 2-5-4.
3) Set the neutral manual tracking position, by simultaneously press of the (+) and (–) tracking buttons.
4) If adjustment is required, slightly loosen screws ④ and ⑤. Set A/C head positioning tool on the A/C head adjusting boss as shown in Fig. 2-5-2.
5) Turn the tool first to position the A/C head fully toward the capstan. Then gradually return it toward the durm and stop at the position of maximum FM waveform output level as shown in Fig. 2-5-4.
6) Tighten screw ⑤. Remove the tool and tighten screw ④.
7) Eject the tape and then re-insert again. Playback the Alignment Tape. Set the neutral manual tracking position. Push the tracking (+) button (count the number of pushes) until the maximum RF envelope is reduced to 1/2. Eject the tape and re-insert it again. Playback the Alignment Tape. Set the neutral manual tracking position. Push the tracking (–) button (count the number of pushes) until the maximum RF envelope is reduced to 1/2.
8) Confirm that the number of pushes are equal.

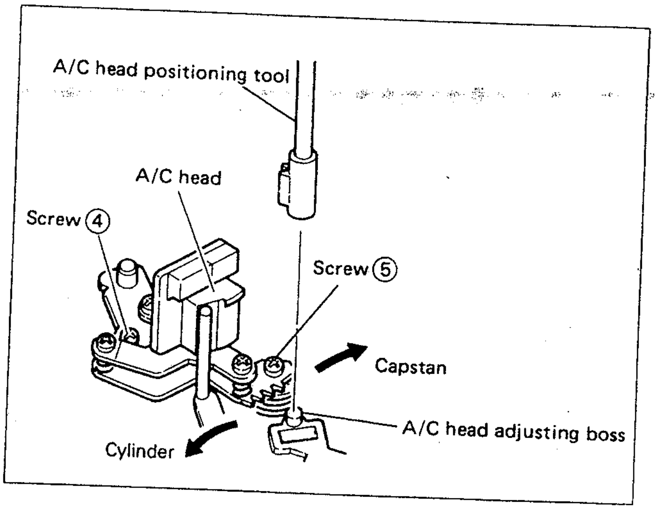


Fig. 2-5-2

2.5.3 Playback tracking

This is the most important adjustment. If incorrect, proper tracking will not be obtained in recording and playback.
Other problems that may occur are noise in parts of the picture, poor colour reproduction and picture instability.

1) Play back the stairstep portion of the alignment tape.
2) Connect the oscilloscope to TP506 (PB FM) on the PRE/REC AMP board. Use TP511 (DRUM FF) as a trigger. Confirm that the RF envelope appears, as in Fig. 2-5-4.
3) Operate the tracking adjustment (press the tracking buttons during playback) and set for maximum playback RF envelope waveform.
4) If adjustment is required, first slightly loosen the set screw located at the bottom of the guide rollers. Using the guide roller adjustment tool, adjust the supply and take-up guide rollers (refer to Fig. 2-5-3) to obtain the correct waveform. Refer to Fig. 2-5-5.

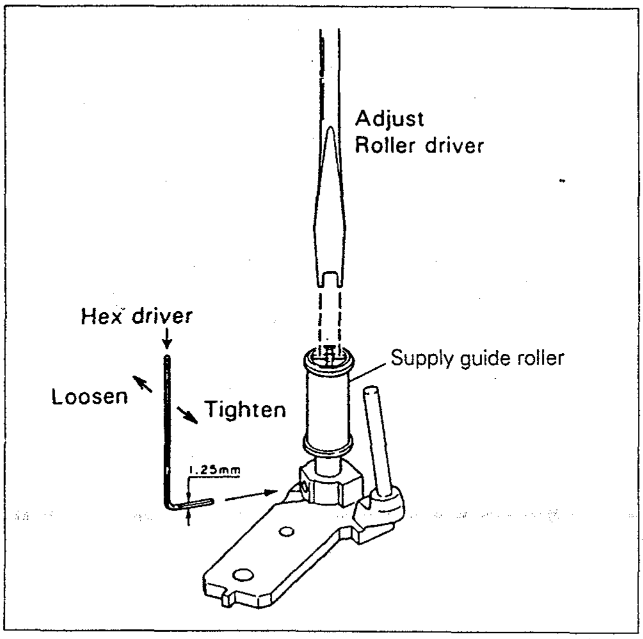

Adjust
Roller driver
Hex driver
Loosen
Tighten
1.25mm
Supply guide roller

Fig. 2-5-3

5) By pushing the tracking buttons several times, vary the FM waveform output from maximum to minimum (and vice versa) gradually, and confirm that the variation proceeds in a flat shape, as in Fig. 2-5-6.
6) If the FM waveform varies and is not mostly flat, tweak the height of guide roller(s) until the RF waveform is as flat as possible.
7) Eject a tape and then playback tape again, since the height of guide rollers may move during adjustment. Confirm, when pushing the tracking (+) and (-) buttons, FM waveform variation is always flat.
8) After adjustment, confirm that the tape wrinkling does not occur at the roller upper or lower limits, as in Fig. 2-5-7.
9) Perform step 2.5.1 and 2.5.2.

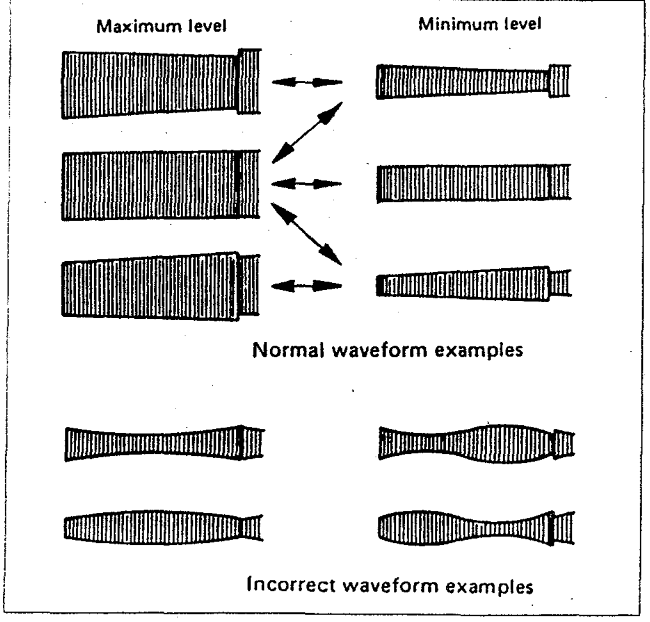

Maximum level
Minimum level
Normal waveform examples
Incorrect waveform examples

Fig. 2-5-4

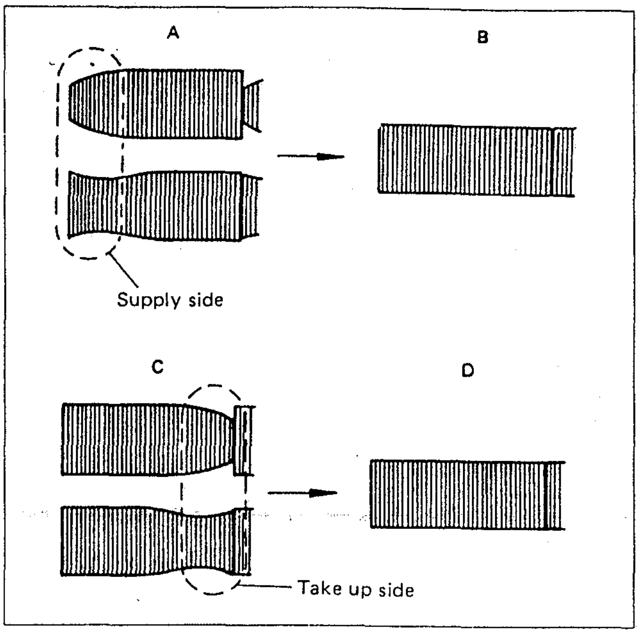

A
B
Supply side
C
D
Take up side

Fig. 2-5-5

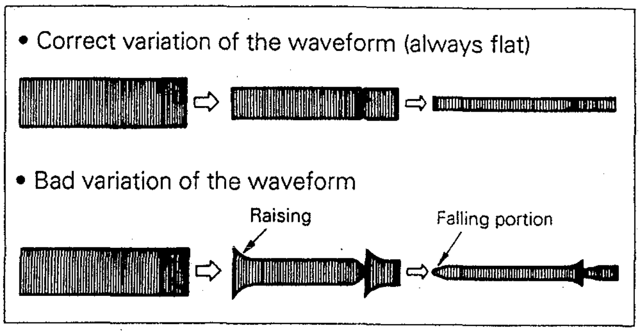

• Correct variation of the waveform (always flat)
• Bad variation of the waveform
Raising
Falling portion

Fig. 2-5-6

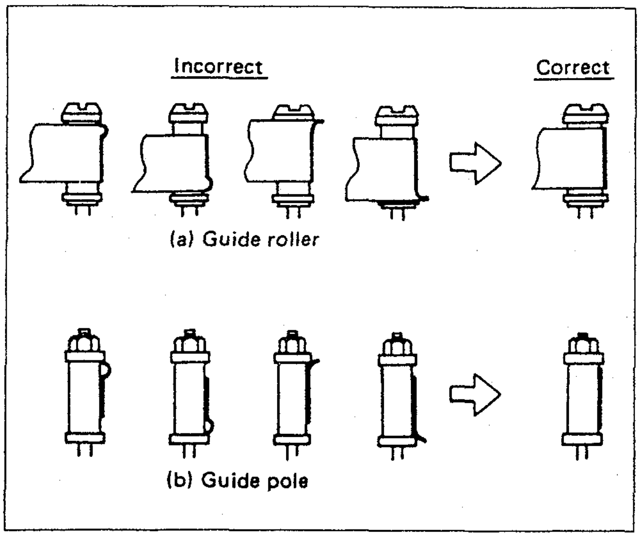

Incorrect
Correct
(a) Guide roller
(b) Guide pole

Fig. 2-5-7

SECTION 3
ELECTRICAL ADJUSTMENT

3.1 DECK SECTION ADJUSTMENT

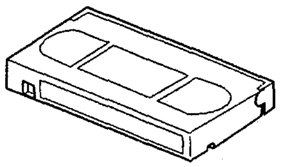
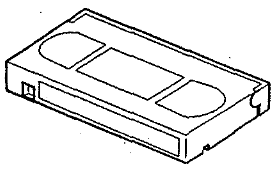
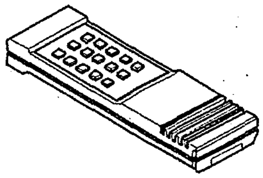
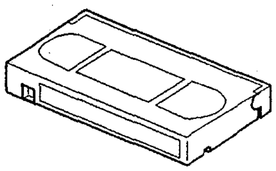
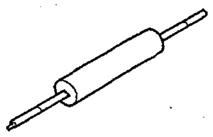
3.1.1 PRECAUTION

Electrical adjustments are required after replacing circuit components and certain mechanical parts.
It is important to perform these adjustments only after all repairs and replacements have been completed. Also, do not attempt these adjustments unless the proper equipments is available.

1. Required test equipment

1. Colour television or monitor
2. Osciloscope: wide-band, dual-trace, triggered delayed sweep
3. Frequency counter
4. Digital voltmeter
5. Signal generator: RF/IF sweep/maker
6. Signal generator: PAL/SECAM/NTSC colour bar, stairstep
7. Recording tape

2. Required adjustment tools

Alignment tape (SP) MH-1 : NTSC	Alignment tape (SP) MH-2 : PAL
	
Presetting unit PTU94008	Alignment tape (LP) MH-2L
	
Adjustment driver YTU93004-2	∗SMC replacement tools YTU94038C
	

∗**Note:** *It is convenient for replacing chip parts.*
Table 3-1-1 Required adjustment tools

3. Colour bar signal and pattern

- SECAM colour bar signal waveform

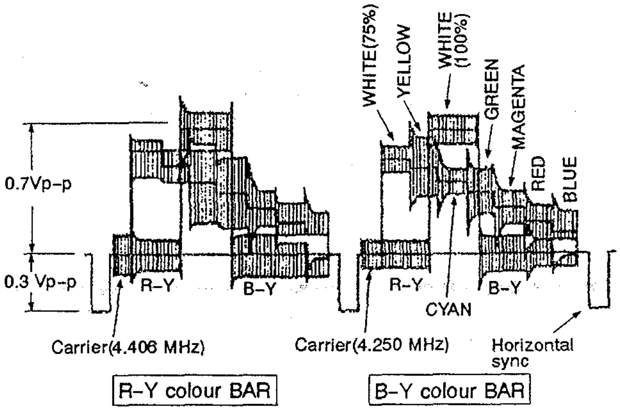

WHITE(75%)
YELLOW
WHITE (100%)
GREEN
MAGENTA
RED
BLUE
0.7Vp-p
0.3 Vp-p
R-Y
B-Y
R-Y
B-Y
CYAN
Carrier(4.406 MHz)
Carrier(4.250 MHz)
Horizontal sync
R-Y colour BAR
B-Y colour BAR

Fig. 3-1-1 SECAM colour bar signal waveform

- SECAM colour bar pattern

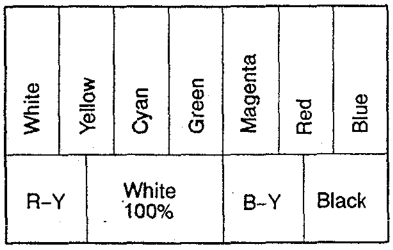

White
Yellow
Cyan
Green
Magenta
Red
Blue
R-Y
White 100%
B-Y
Black

Fig. 3-1-2 SECAM colour bar pattern

- PAL colour bar signal waveform

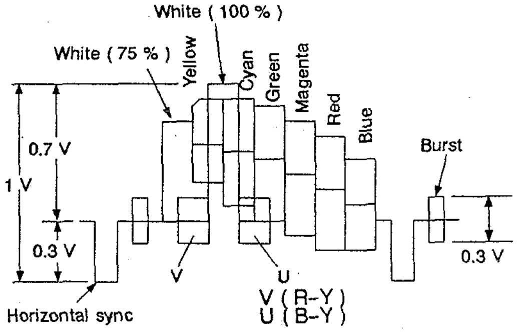

White (100 %)
White (75 %)
Yellow
Cyan
Green
Magenta
Red
Blue
Burst
0.7 V
1 V
0.3 V
0.3 V
V
U
Horizontal sync
V (R-Y)
U (B-Y)

Fig. 3-1-3 PAL Colour bar signal waveform

- PAL colour bar pattern

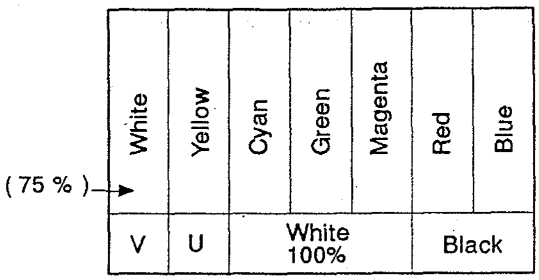

White
Yellow
Cyan
Green
Magenta
Red
Blue
(75 %)
V
U
White 100%
Black

Fig. 3-1-4 PAL colour bar pattern

- NTSC colour bar signal waveform

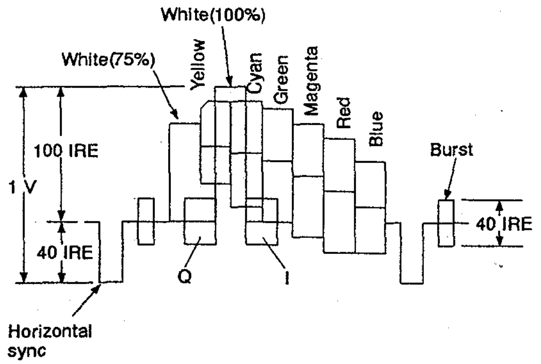

White(100%)
White(75%)
Yellow
Cyan
Green
Magenta
Red
Blue
Burst
100 IRE
1 V
40 IRE
40 IRE
Q
I
Horizontal sync

Fig. 3-1-5 NTSC Colour bar signal waveform

- NTSC colour bar pattern

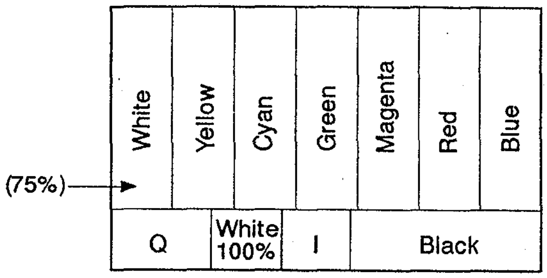

White
Yellow
Cyan
Green
Magenta
Red
Blue
(75%)
Q
White 100%
I
Black

Fig. 3-1-6 NTSC colour bar pattern

3.1.2 SERVO CIRCUIT

Note: *Unless otherwise specified, all measurement points and adjustment parts are located on the MAIN BOARD.*

1. PB switching point (PAL)

Signal	•Alignment tape (MH-2) •Stairstep
Mode	•PB (PAL) •Digital tracking OFF
Equipment	•Oscilloscope
Measurement point	•CN3 pin 10 (VIDEO OUT) (VIDEO UNIT BOARD)
Trigger slope (-)	•TP411 (DRUM FF)
Adjustment tool	•Presetting unit [PTU94008]
Specification	•6.5 ± 0.5 H

Note: *Use only buttons "E" and "F". Deplessing other buttons during adjustment may cause adjustment errors.*

1) Connect an oscilloscope to CN3 pin 10 and external trigger from TP411 (negative slope).
2) Playback the stairstep signal of the alignment tape.
3) Set the tracking control to the center position by simultaneously pressing the (+) and (-) buttons.
4) Adjust by pressing "E" (+) or "F" (-) buttons of presetting unit for position the trigger point 6.5 ± 0.5 H from V.sync.

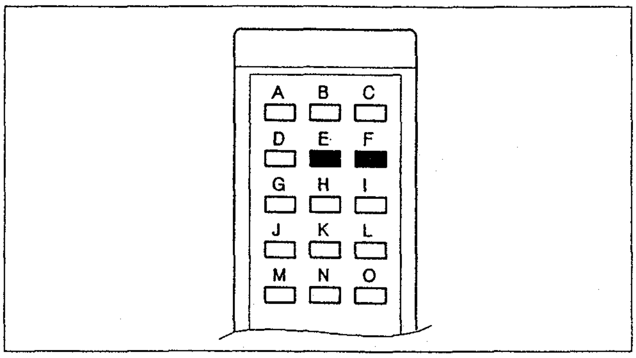

A
B
C
D
E
F
G
H
I
J
K
L
M
N
O

Fig. 3-1-7 Presetting unit (PAL)

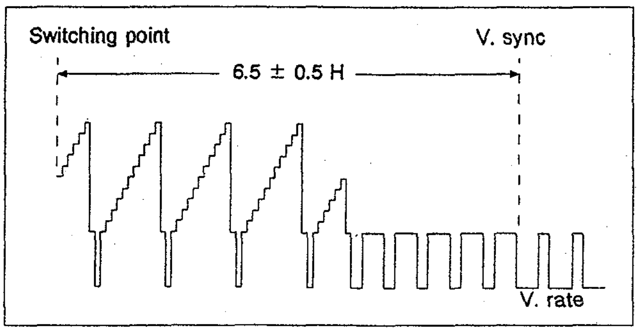

Switching point
V. sync
6.5 ± 0.5 H
V. rate

Fig. 3-1-8 PB switching point (PAL)

2. PB switching point (NTSC)

Signal	•Alignment tape (MH-1) •Stairstep
Mode	•PB (NTSC) •Digital tracking OFF
Equipment	•Oscilloscope
Measurement point	•CN3 pin 10 (VIDEO OUT) [VIDEO UNIT BOARD]
Trigger slope (-)	•TP411 (DRUM FF)
Adjustment tool	•Presetting unit [PTU94008]
Specification	•6.5 ± 0.5 H

Note: *Use only buttons "E" and "F". Deplessing other buttons during adjustment may cause adjustment errors.*

1) Connect an oscilloscope to CN3 pin 10 and external trigger from TP411 (negative slope).
2) Playback the stairstep signal of the alignment tape.
3) Set the tracking control to the center position by simultaneously pressing the (+) and (-) buttons.
4) Adjust by pressing "E"(+) or "F"(-) buttons of presetting unit for position the trigger point 6.5 ± 0.5 H from V.sync.

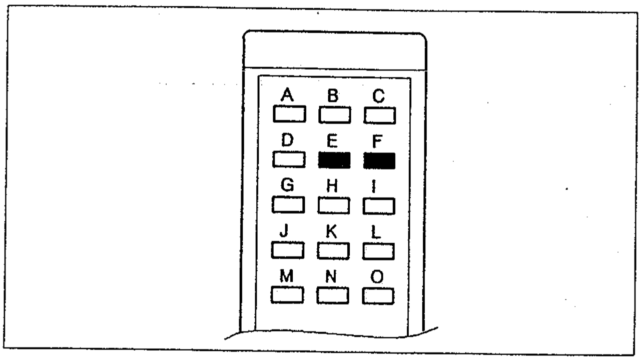


Fig. 3-1-9 Presetting unit (NTSC)

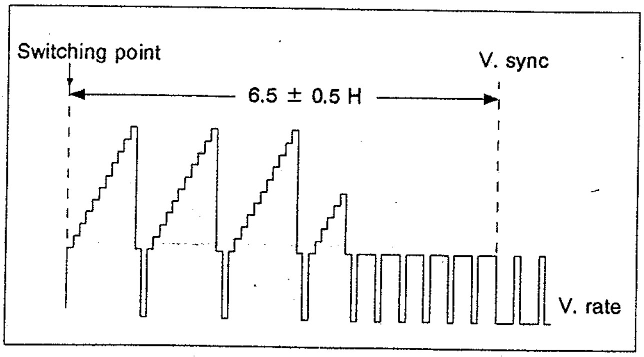


Fig. 3-1-10 PB switching point (NTSC)

3. Slow tracking preset

Signal	•PAL colour bar •NTSC colour bar
Mode	•SP •LP •EP •REC → PB (SLOW) •Digital tracking OFF
Equipment	•TV-Monitor
Adjustment tool	•Presetting unit [PTU94008]
Specification	•Mimimum noise

Note: *Set VCR to the mode A by remote controller.*

1) Record a PAL colour bar signal in the SP mode.
2) Playback recorded signal on the FWD slow mode.
3) Set the tracking control to the centre position by simultaneously pressing the (+) and (-) buttons.
4) Observe the display on a TV monitor and adjust for optimum noise condition (best tracking) by depressing "C"(+) or "B"(-) buttons of presetting unit as required.
5) Depress the STOP button.
6) Confirm that the bar noise is not visible on the monitor in the slow mode.
7) Repeat steps 2) to 6) in REV slow mode.
8) Repeat steps 1) to 7) in LP mode.
9) Record a NTSC colour bar singnal, and repeat steps 2) to 7) in SP mode.
10) Record a NTSC colour bar signal, and repeat steps 2) to 7) in EP moed.

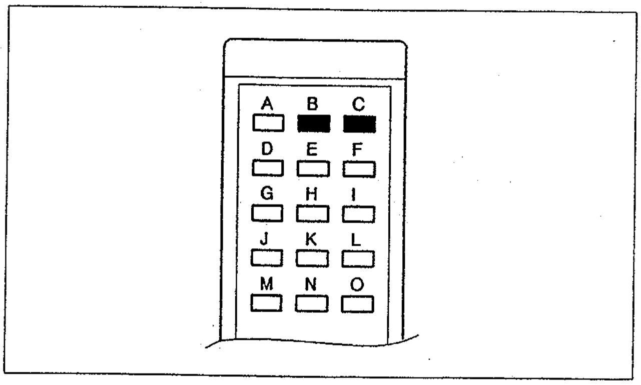


Fig. 3-1-11 Presetting unit

3.1.3 VIDEO CIRCUIT

Note: *Unless otherwise specified, all measurement points and adjustment parts are located on the VIDEO UNIT BOARD.*

Important:

Item 1. thru 6..

1) Ordinarily performing these adjustments is not required. Adjustments should be performed only if IC2 on the VIDEO UNIT BOARD has been replaced.
2) To adjust, replace fixed resistor with variable chip resistor, then adjust as required.

1. EE Y level

Signal	•PAL colour bar •NTSC colour bar
Mode	•EE
Equipment	•Oscilloscope
Measurement point	•CN3 pin 10 (VIDEO OUT)
Adjustment part	•R42 (EE Y LEVEL)
Specification	•2.00 ± 0.06 Vp-p (Unterminated)

1) Connect an oscilloscope to CN3 pin 10.
2) Supply a PAL colour bar signal.
3) Confirm that Y level is 2.00 ± 0.06 Vp-p. Unterminated.
4) If necessary, replace R42 with the variable chip resistor NVP1301-153N and adjust it for 2.00 ± 0.06 Vp-p, as in Fig. 3-1-13.
5) Supply a NTSC colour bar signal, and repeat steps 3) and 4).

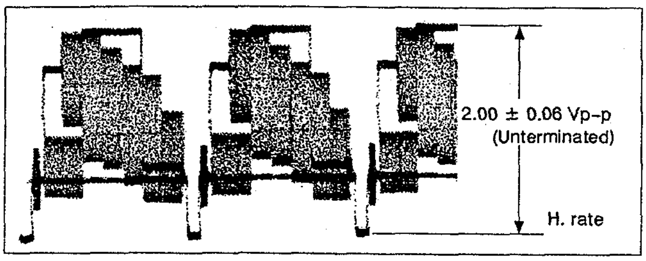


Fig. 3-1-13 EE Y level

2. White clip

Signal	•PAL colour bar
Mode	•EE
Equipment	•Oscilloscope
Measurement point	•IC2 pin 22
Adjustment part	•R45 (W/D CLIP)
Specification	•WHITE CLIP : 190 ± 4 % •DARK CLIP : 145 ± 8 %

1) Connect an oscilloscope to IC2 pin 22.
2) Confirm that white clip is 190 ± 4 % and dark clip is 145 ± 8 %.
3) If necessary, replace R45 with the variable chip resistor NVP1301-103N and adjust it 190 ± 4 % white clip and 145 ± 8 % dark clip, as in Fig. 3-1-14.

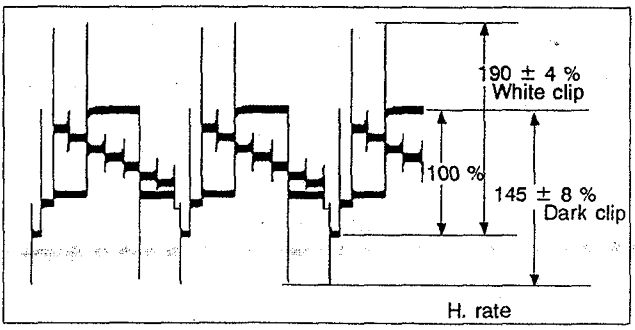


Fig. 3-1-14 White clip

3. Carrier & deviation

• Carrier

Signal	•No signal-VIDEO INPUT (Shorted RCA Phono Plug)
Mode	•EE
Equipment	•Frequency counter
Measurement point	•CN2 pin 5
Adjustment part	•R28 (CARRIER)
Specification	•3.80 MHz ± 40 kHz

1) Connect the frequency counter to CN2 pin 5.
2) Confirm that frequency is 3.80 MHz ± 40 kHz.
3) If necessary, replace R28 with the variable chip resistor NVP1301-223N and adjust it for 3.80 MHz ± 40 kHz.

• Deviation

Signal	•PAL colour bar
Mode	•REC → PB
Equipment	•Oscilloscope
Measurement point	•CN3 pin 10 (VIDEO OUT)
Adjustment part	•R29 (DEVIATION)
Specification	•2.00 ± 0.06 Vp-p (Unterminated)

4) Record and playback a PAL colour bar signal.
5) Confirm that Y level is 2.00 ± 0.06 Vp-p unterminated.
6) If necessary, replace R29 with the variable chip resistor NVP1301-103N and adjust it for 2.00 ± 0.06 Vp-p, as in Fig. 3-1-15.

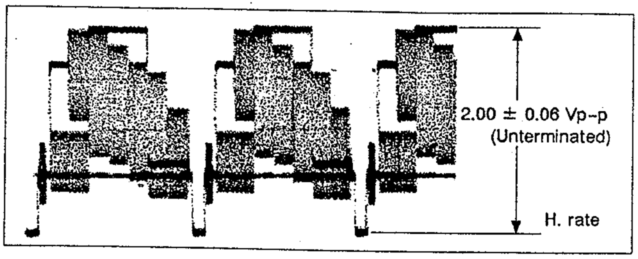


Fig. 3-1-15 Carrier & deviation

4. YNR level

Signal	•PAL colour bar
Mode	•EE
Equipment	•Oscilloscope
Measurement point	•IC2 pin 9
Adjustment part	•R18 (N.C. BALANCE)
Specification	•Mimimum DC step difference

1) Connect an oscilloscope to IC2 pin 9.
2) Confirm that DC step difference is minimum.
3) If necessary, replace R18 with the variable resistor NVP1301-152NZ and adjust it for minimum DC step difference, as in Fig. 3-1-16.

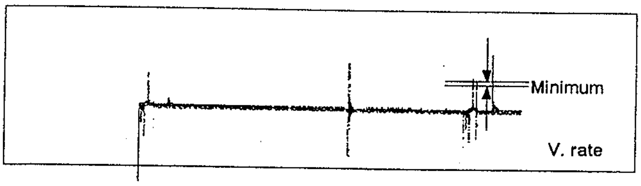


Fig. 3-1-16 YNR level

5. PB Y level

Signal	•PAL colour bar
Mode	•SP •REC → PB
Equipment	•Oscilloscope
Measurement point	•CN3 pin 10 (VIDEO OUT)
Adjustment part	•R25 (PB Y LEVEL)
Specification	•2.00 ± 0.06 Vp-p (Unterminated)

Note: *Confirm that procedure 3.1.4-2. is correct before performing this adjustment procedure.*

1) Connect an oscilloscope to CN3 pin 10.
2) Record and playbck a PAL colour bar signal.
3) Confirm that Y level is 2.00 ± 0.06 Vp-p unterminated.
4) If necessary, replace R25 with the variable resistor NVP1301-472N and adjust it for 2.00 ± 0.06 Vp-p, as in Fig. 3-1-17.

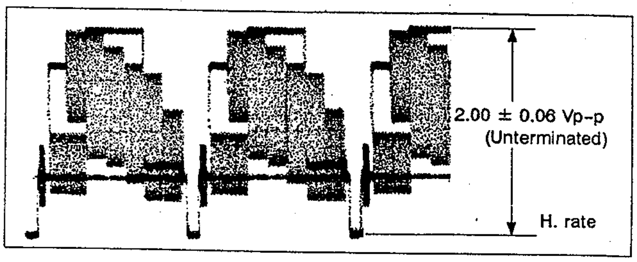


Fig. 3-1-17 PB Y level

6. REC colour level

Signal	•PAL colour bar
Mode	•SP •REC
Equipment	•Oscilloscope
Measurement point	•CN2 pin 11 (REC COLOUR)
Adjustment part	•R52 (REC COLOUR LEVEL)
Specification	•200 ± 10 mVp-p

1) Connect an oscilloscope to CN2 pin 11.
2) Record a PAL colour bar signal in SP mode.
3) Confirm that colour level is 200 ± 10 mVp-p, as in Fig. 3-1-18.
4) If necessary, replace R52 with the variable resistor NVP1301-222N and adjust it for 200 ± 10 mVp-p.

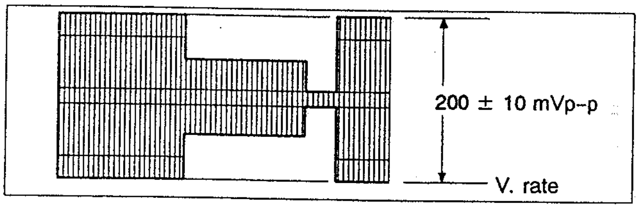


Fig. 3-1-18 REC colour level

7. MESECAM detect

Signal	•SECAM colour bar
Mode	•EE
Equipment	•Oscilloscope
Measurement point	•TP244 (MESECAM DETECT) 〔MAIN BOARD〕
Adjustment part	•L202 (MESECAM DETECT) 〔MAIN BOARD〕
Specification	•A : B = 3 : 4

1) Connect an oscilloscope to TP244.
2) Adjust L202 so that A and B are related as follows : A : B = 3 : 4.

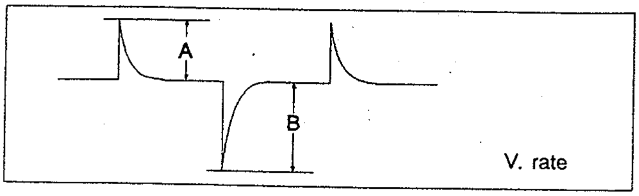


Fig. 3-1-19 MESECAM detect

3.1.4 TIMER CIRUCIT

Note: *Unless otherwise specified, all measurement points and adjustment parts are located on the MAIN BOARD.*

1. Timer clock

Signal	•No signal
Mode	•EE •AUX
Equipment	•Frequency counter
Measurement point	•IC601 pin 64
Adjustment part	•C614 (TIMER CLOCK)
Specification	•1024.005 ± 0.001 Hz (976.5577 ± 0.0010 μsec)

1) Connect the frequency counter to IC601 pin 64 and GND.
2) Short IC601 pin 21 to IC601 pin 63.
3) Short the lead's capacitor C616 once in order to reset IC601.
4) Adjust C614 for 1024.005 ± 0.001 Hz (976.5577 ± 0.0010 μsec).
5) Disconnect a short wire.

3.1.5 AUDIO CIRCUIT

Note: *Unless otherwise specified, all measurement points and adjustment parts are located on the AUDIO UNIT BOARD.*

Important:

Item 1. thru 3..

1) Ordinarily performing these adjustments is not required. Adjustments should be performed only if IC1 on the AUDIO UNIT BOARD has been replaced.
2) To adjust, replace fixed resistor with variable chip resistor, then adjust as required.

1. Carrier frequency adjustment (NTSC)

Signal	•No signal
Mode	•EE •NTSC mode
Equipment	•Frequency counter
Measurement point	•IC1 pin 21 •IC1 pin 43
Adjustment part	•R11 (L CARRIER NTSC) •R25 (R CARRIER NTSC)
Specification	•1.3 MHz ± 5 kHz : R11 •1.7 MHz ± 5 kHz : R25

1) Connect the frequency counter to IC1 pin 21 and GND.
2) Confirm that frequency is 1.3 MHz ± 5 kHz.
3) If necessary, replace R11 with the variable resistor NVP1301-473N and adjust it for 1.3 MHz ± 5 kHz.
4) Connect the frequency counter to IC1 pin 43 and GND.
5) Confirm that frequency is 1.7 MHz ± 5 kHz.
6) If necessary, replace R25 with the variable resistor NVP1301-332N and adjust it for 1.7 MHz ± 5 kHz.

2. Carrier frequency adjstment (PAL)

Signal	•No signal
Mode	•EE •PAL mode
Equipment	•Frequency counter
Measurement point	•IC1 pin 21 •IC1 pin 43
Adjustment part	•R61 (L CARRIER PAL) •R60 (R CARRIER PAL)
Specification	•1.4 MHz ± 5 kHz : R61 •1.8 MHz ± 5 kHz : R60

1) Connect the frequency counter to IC1 pin 21 and GND.
2) Confirm that frequency is 1.4 MHz ± 5 kHz.
3) If necessary, replace R61 with the variable resistor NVP1301-153N and adjust it for 1.4 MHz ± 5 kHz.
4) Connect the frequency counter to IC1 pin 43 and GND.
5) Confirm that frequency is 1.8 MHz ± 5 kHz.
6) If necessary, replace R60 with the variable resistor NVP1301-153N and adjust it for 1.8 MHz ± 5 kHz.

3. Hi-Fi playback audio level

Signal	•Audio 1 kHz (-8 dBs)
Mode	•REC → PB
Equipment	•Audio oscillator •AC millivoltmeter
Measurement point	•Audio out (L ch) •Audio out (R ch)
Adjustment part	•R5 (L DEVIATION) •R30 (R DEVIATION)
Specification	•-8 dBs (0.9 Vp-p, 0.32 Vrms)

1) Connect an audio oscillator to audio input (left channel).
2) Record and playback an audio signal.
3) Confirm that output level is -8 dBs (0.9 Vp-p, 0.32 Vrms).
4) If necessary, replace R5 with the variable resistor NVP1301-473N and adjust it for -8 dBs (0.9 Vp-p, 0.32 Vrms).
5) Connect an audio oscillator to audio input (right channel).
6) Record and playback an audio signal.
7) Confirm that out put level is -8 dBs (0.9 Vp-p, 0.32 Vrms).
8) If necessary, replace R30 with the variable resistor NVP1301-473N and adjust it for -8 dBs (0.9 Vp-p, 0.32 Vrms).

3.1.6 DEMODULATOR CIRUCIT

Note: *Unless otherwise specified, all measurement points and adjustment parts are located on the DEMODULATOR BOARD.*

1. Stereo separation

Signal	•Audio multipix TV signal generator
Mode	•STEREO mode •R mod •L unmod
Equipment	•Oscilloscope
Measurement point	•CN204 pin 2
Adjustment part	•R264 (SEPARATION)
Specification	•Mnimum level

1) Set a signal generator to stereo mode, but adjust only R channel.
2) Connect an oscilloscope to pin 2 of CN204.
3) Adjust R264 for minimum output level.

3.1.7 TUNER CIRCUIT

Note: *Unless otherwise specified, all measurement points and adjustment parts are located on the IF BOARD.*

Equipment required

1. IF sweep signal generator
   (with suitable markers, PIF, SIF, etc.)
2. Sweep signal supply cable (See Fig. 3-1-20)

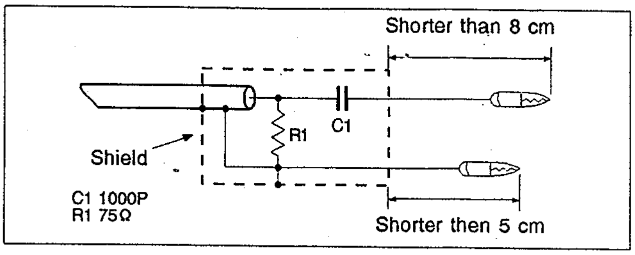


Fig. 3-1-20 Sweeper probe

1. VCO

⟨Factory Method⟩

Signal	•Sweep generator output
Mode	•Tuner (without antenna input Signal)
Equipment	•Oscilloscope •IF sweep signal generator
Sweeper probe	•Sweep signal supply cable
Measurement point	•IC1 pin 17
Adjustment part	•T3 (VCO)
Specification	•38.0 MHz (no distorton)

1) Use a sweeper probe as shown in Fig. 3-1-20 and connect the sweep generator output to pin 8 of IC1.
2) Adjust the sweep gain so that the waveform does not distort as observed with the oscilloscope.
3) Connect an oscilloscope to pin 17 of IC1 (VIDEO DET OUT) and adjust T3 to align the waveform with the frequency marker as shown in Fig. 3-1-21.

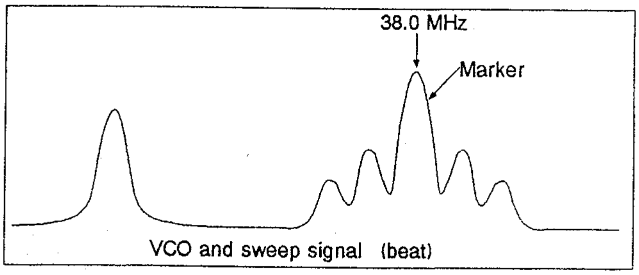


Fig. 3-1-21 VCO

《Alternate Method》

Signal	•TV broadcasting
Mode	•Tuner
Equipment	•Monitor-TV
Other condition	•Same as Factory Method
Specification	•Fine picture

1) Receive a colour broadcasting on a VHF channel.
2) Adjust T3 to obtain a fine picture on the monitor.

Note: *Before the following adjustments;*

1) Connect a cable to ANT IN and terminate TV OUT with 75 ohms.

2) Set a TV channel signal generator as follows.

Video: 65 dBμ 75 Ω, colour bar 87.5 % modulation.

Audio: 55 dBμ 75 Ω, 1 kHz ± 50 kHz deviation.

2. RF AGC

⟨Factory Method⟩

Signal	•TV broadcasting
Mode	•Tuner
Equipment	•Oscilloscope •TV signal generator
Measurement point	•IF terminal of front end
Adjustment part	•R30 (RF AGC)
Specification	• −7 ± 0.5 dB from maximum level (with minimum noise)

1) Connect an oscilloscope to IF terminal of U/V Tuner (front end) .
2) Adjust R30 for maximum level, then adjust R30 to reduce the −7.0 dB from maximum level.

《Alternate Method》

Signal	•TV broadcasting
Mode	•Tuner
Equipment	•TV-monitor
Other condition	•Same as Factory Method
Specification	•Noise just disappears

Note: *Adjust R30 (RF AGC) to correct for excess noise in the picture or when streaks cross interference occurs due to strong electrical fields.*

1) Adjust R30 to minimize noise or streaks on the TV screen.
2) Adjust for noisy picture with strong signal. Then adjust until noise just disappears. Select other channels to confirm proper pick-up of channels.

3. SOUND DET.

⟨Factory Method⟩

Signal	•TV broadcasting
Mode	•Tuner •AFC NORM by MENU
Equipment	•Distortion meter
Measurement point	•CN2 pin 9
Adjustment part	•T1 (FM DET)
Specification	•Minimum distortion

1) Use a adjustment circuit as shown in Fig.3-1-22 and with AFC mode to NORM.
2) Connect the distortion meter to pin 9 of CN2 and observe audio signal.
3) Adjust T1 so that the distortion becomes minimum (less than 1.5 %).

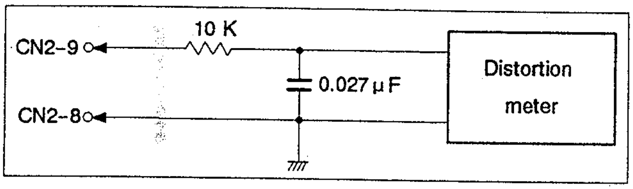


Fig. 3-1-22 Adjustment circuit

《Alternate Method》

Signal	•TV broadcasting
Mode	•Tuner
Equipment	•Oscilloscope
Other condition	•Same as Factory Method
Specification	•Maximum level

1) Receive a colour broadcasting on a VHF channel , and connect an oscilloscope to pin 9 of CN2.
2) Adjust T1 for maximum level at audio sound.

4. AFC

Signal	•TV broadcast
Mode	•Tuner •AFC NORM by MENU
Equipment	•Oscilloscope
Measurement point	•CN1 pin 14
Adjustment part	•T2 (AFC)
Specification	•2.0 ± 0.2 V DC

1) Receive a colour broadcast.
2) With AFC mode to NORM connect an oscilloscope to pin 14 of CN1.
3) Set the oscilloscope to DC mode and adjust T2 to set the lower edge of the ripple waveform to 2.0 V DC.

SECTION 4
CHARTS AND DIAGRAMS

SCHEMATIC DIAGRAM NOTES

Safety precautions

The Components identified by the symbol ⚠ are critical for safety. For continued safety, replace safety critical components only with manufactures recommended parts.

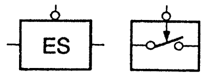
1. Schematic diagram values

Unless otherwise specified.

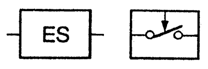
1) All resistance values are in ohms. 1/6 W, 1/8 W (refer to parts list).
   Chip resistors are 1/16 W.
   K: KΩ (1000Ω), M: MΩ (1000KΩ)
2) All capacitance values are in µF, (P: PF).
3) All inductance values in µH, (m: mH).
4) All diodes are 1SS133 or MA165, (refer to parts list).

2. Indications

AUX : Active only at high.
$\overline{\text{AUX}}$: Active only at low.

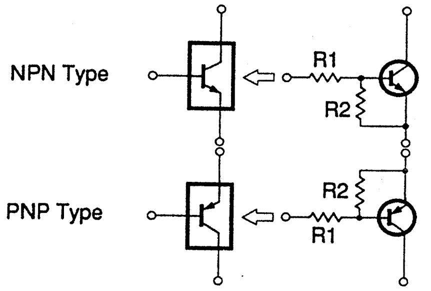


Active only at low for electronic switch.

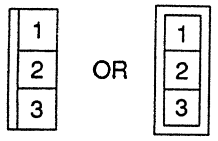


Active only at high for electronic switch.

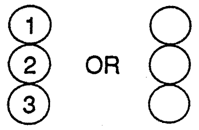
Digital transistor :
The digital transistor includes built in resistors.
It features small size and high reliability.


NPN Type
R1
R2
PNP Type
R2
R1

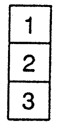
3. Interpreting Connector indications



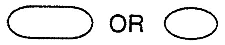
Removable connector



Direct connection on board



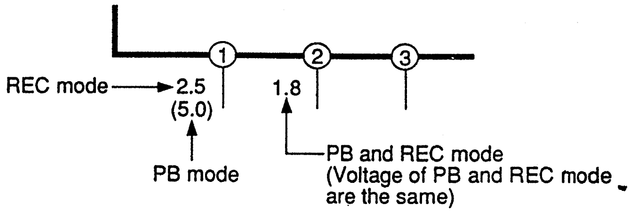
Non-removable Board connector



Connected pattern on board

4. Voltage measurement

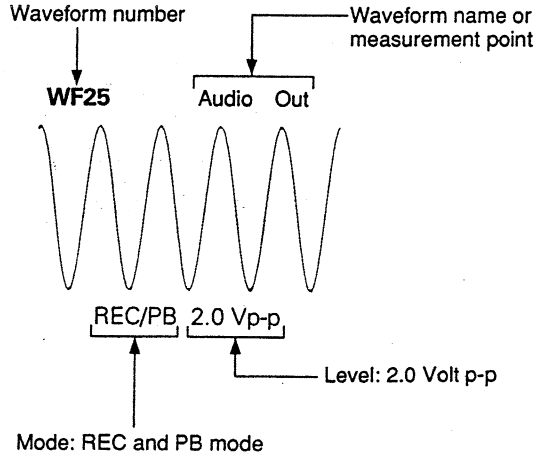
1) Voltage chart
   REC : Color bar signal in SP mode, normal VHS mode.
   PB : Alignment tape, color bar SP mode, normal VHS mode.
   — : Unmeasurable or unnecessary to measure.
2) Audio section
   REC : 1KHz, –8 dBs sine wave signal in SP mode, Normal VHS mode.
   PB : REC then playback it.
3) Movie Camera Section
   Measured as the grey scale pattern and color bar pattern which lighted up brightly is shot in the E-E mode.
4) Schematic diagram
   Voltage Indications for REC and PB mode on Schematic are as shown below.


①
②
③
REC mode
2.5
(5.0)
1.8
PB mode
PB and REC mode
(Voltage of PB and REC mode are the same)

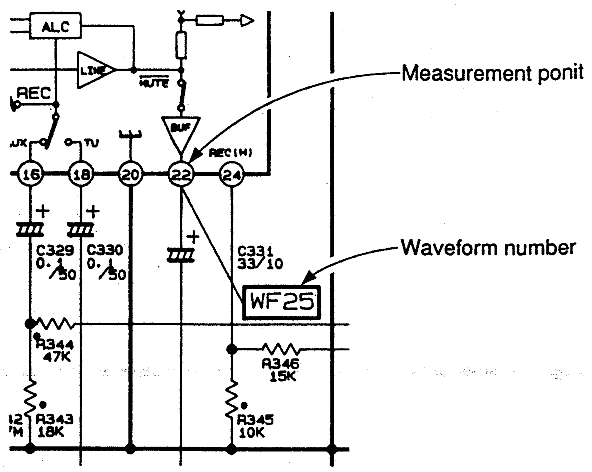
5. Waveform measurement

1) Waveform chart
   REC : Color bar signal in SP mode, normal VHS mode.
   PB : Alignment tape, color bar SP mode, normal VHS mode.
2) Audio Section
   REC : 1KHz, –8 dBs sine wave signal in SP mode, normal VHS mode.
   PB : REC then playback it.
3) Movie Camera Section
   Measured as the grey scale or color bar pattern which lighted up brightly is shot in the E-E mode.

Example:

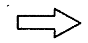
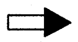
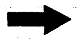
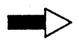
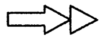
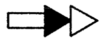
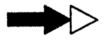
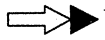
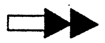
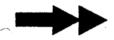

Waveform number
Waveform name or measurement point
WF25
Audio Out
REC/PB
2.0 Vp-p
Level: 2.0 Volt p-p
Mode: REC and PB mode

4) Schematic diagram
   Waveform indications on schematic are as shown below.


ALC
LINE
MUTE
REC
AUX
TU
BUF
REC(H)
16
18
20
22
24
C329 0.1/50
C330 0.1/50
C331 33/10
WF25
R344 47K
R346 15K
R343 18K
R345 10K
Measurement ponit
Waveform number

6. Signal path Symbols

The arrows indicate the signal path as follows.

	Playback signal path
	Playback and recording signal path
	Recording signal path (including E-E signal path)
	Y signal path
	Color (Chroma) signal path
	R or R-Y signal path
	B or B-Y signal path
	Capstan servo path
	Drum servo path
	Reel servo path

CIRCUIT BOARD NOTES

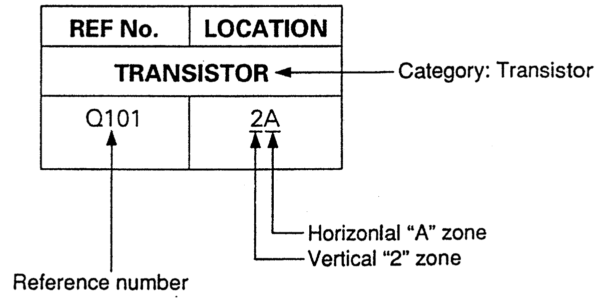
1. Color indications

1) Foil side :
   Foil side patterns are indicated at gray shading.
2) Component side :
   Component side patterns are indicated at RED shading.

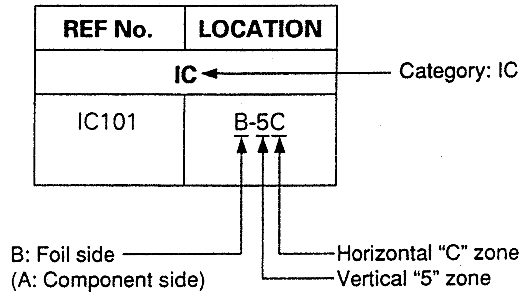
Notes:
Foil side (B side) ;
Parts on the foil side seen from foil face (pattern face) are indicated.
Component side (A side) ;
Parts on the component side seen from component face (parts face) are indicated.

2. Location of SMC indications

1) Single pattern :

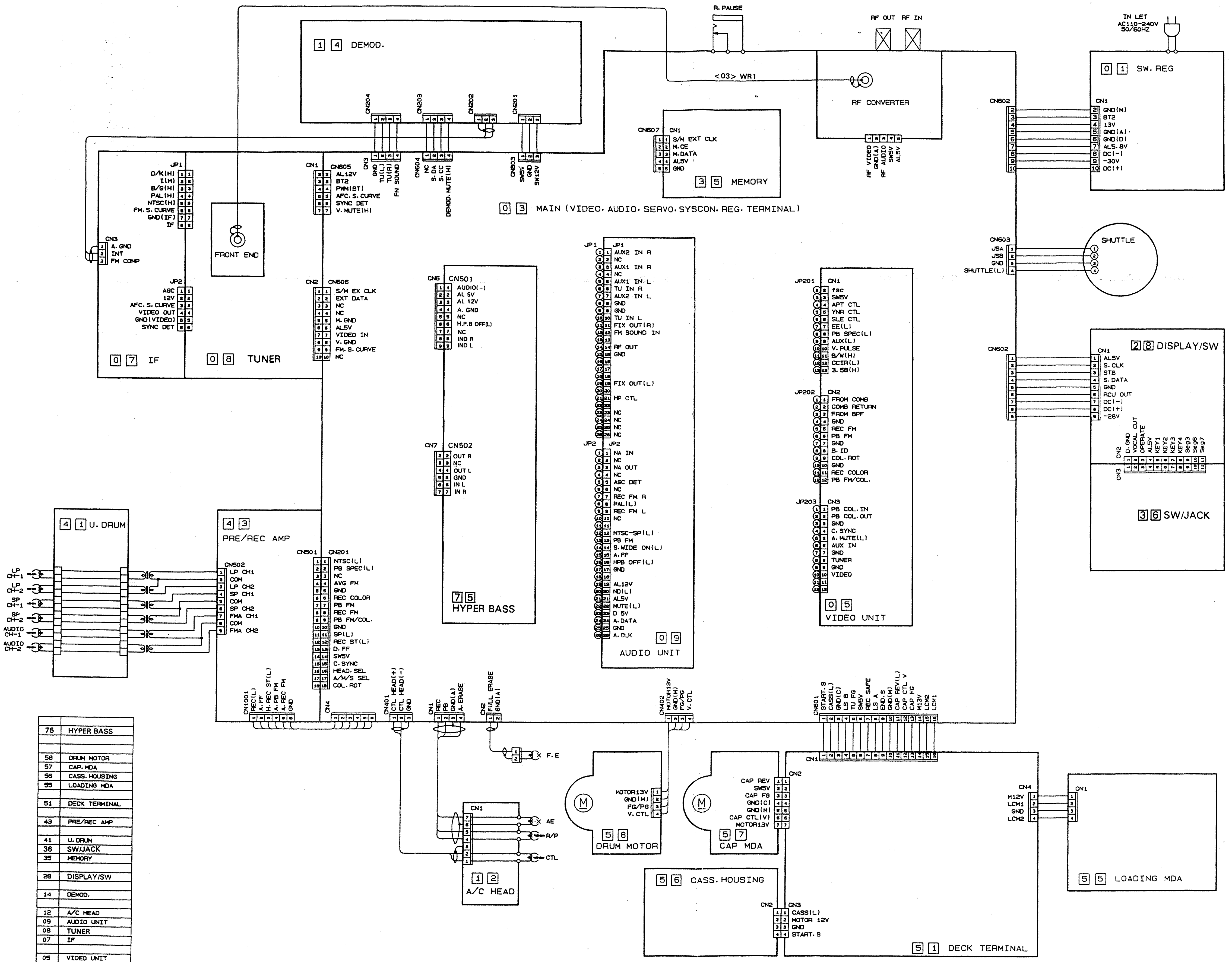

REF No.
LOCATION
TRANSISTOR
Category: Transistor
Q101
2A
Horizonlal "A" zone
Vertical "2" zone
Reference number

2) Double pattern :


REF No.
LOCATION
IC
Category: IC
IC101
B-5C
B: Foil side
(A: Component side)
Horizontal "C" zone
Vertical "5" zone

Notes:
1) **For general information in service manual, please refer to the Service Manual of GENERAL INFORMATION No. 82054C (May 1991).**
2) **For repairing SMC (Surface Mounted Components), please refer to the VIDEO SERVICE GUIDE No. VTS81001.**

4.1 BOARD INTERCONNECTIONS

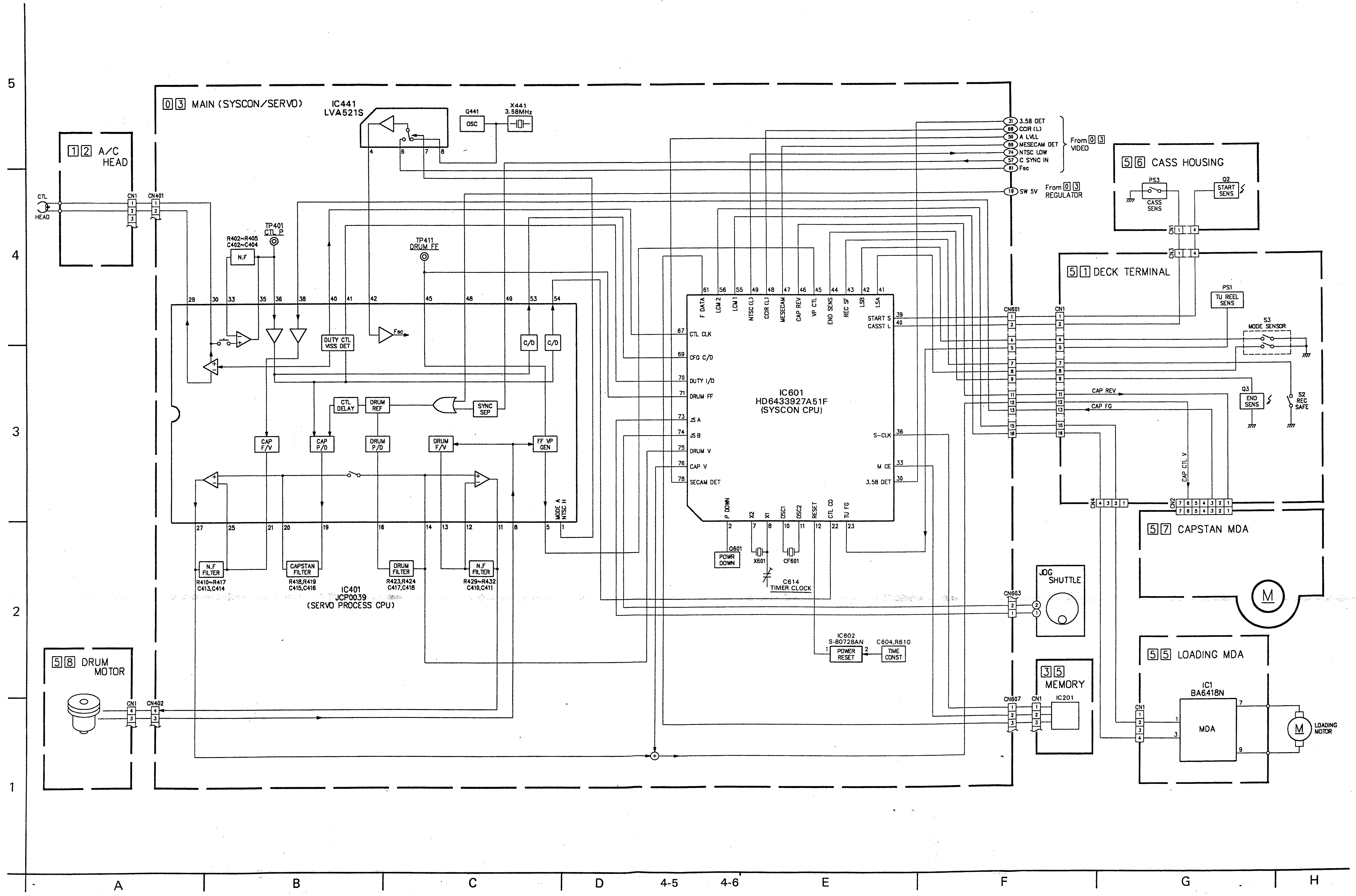


14 DEMOD.
CN204
CN203
CN202
CN201
R. PAUSE
<03> WR1
RF OUT
RF IN
RF CONVERTER
RF VIDEO
GND(A)
RF AUDIO
SW5V
AL5V
IN LET
AC110-240V
50/60HZ
01 SW. REG
CN1
GND(H)
BT2
13V
GND(A)
GND(D)
AL5.8V
DC(-)
-30V
DC(+)
CN602
CN603
CN607
CN1
S/H EXT CLK
M.CE
M.DATA
AL5V
GND
35 MEMORY
JP1
D/K(H)
I(H)
B/G(H)
PAL(H)
NTSC(H)
FM. S. CURVE
GND(IF)
IF
CN3
A. GND
INT
FM COMP
JP2
AGC
12V
AFC. S. CURVE
VIDEO OUT
GND(VIDEO)
SYNC DET
07 IF
08 TUNER
FRONT END
CN1
CN605
AL12V
BT2
PWM(BT)
AFC. S. CURVE
SYNC DET
V. MUTE(H)
CN3
GND
TU(L)
TU(R)
FM SOUND
CN604
NC
S.DA
S.CL
DEMOD. MUTE(H)
CN603
SW5V
GND
SW12V
03 MAIN (VIDEO. AUDIO. SERVO. SYSCON. REG. TERMINAL)
CN2
CN606
S/H EX CLK
EXT DATA
NC
NC
M. GND
AL5V
VIDEO IN
V. GND
FM. S. CURVE
NC
CN6
CN501
AUDIO(-)
AL 5V
AL 12V
A. GND
NC
H.P.B OFF(L)
NC
IND R
IND L
CN7
CN502
OUT R
NC
OUT L
GND
IN L
IN R
75 HYPER BASS
JP1
AUX2 IN R
NC
AUX1 IN R
NC
AUX1 IN L
TU IN R
AUX2 IN L
GND
GND
TU IN L
FIX OUT(R)
FM SOUND IN
RF OUT
GND
FIX OUT(L)
HP CTL
NC
NC
NC
NC
JP2
NA IN
NC
NA OUT
NC
AGC DET
NC
REC FM R
PAL(L)
REC FM L
NC
NTSC-SP(L)
PB FM
S.WIDE ON(L)
A.FF
HPB OFF(L)
GND
AL12V
ND(L)
AL5V
MUTE(L)
D 5V
A.DATA
GND
A.CLK
09 AUDIO UNIT
JP201
CN1
fsc
SW5V
APT CTL
YNR CTL
SLE CTL
EE(L)
PB SPEC(L)
AUX(L)
V. PULSE
B/W(H)
CCIR(L)
3.58(H)
JP202
CN2
FROM COMB
COMB RETURN
FROM BPF
GND
REC FM
PB FM
GND
B. ID
COL. ROT
GND
REC COLOR
PB FM/COL.
JP203
CN3
PB COL. IN
PB COL. OUT
GND
C. SYNC
A. MUTE(L)
AUX IN
GND
TUNER
GND
VIDEO
05 VIDEO UNIT
SHUTTLE
JSA
JSB
GND
SHUTTLE(L)
28 DISPLAY/SW
CN1
AL5V
S.CLK
STB
S.DATA
GND
RCU OUT
DC(-)
DC(+)
-28V
CN2
D.GND
VOCAL CUT
OPERATE
AL5V
KEY1
KEY2
KEY3
KEY4
Seg3
Seg6
Seg7
CN3
36 SW/JACK
41 U. DRUM
LP CH-1
LP CH-2
SP CH-1
SP CH-2
AUDIO CH-1
AUDIO CH-2
43 PRE/REC AMP
CN502
LP CH1
COM
LP CH2
SP CH1
COM
SP CH2
FMA CH1
COM
FMA CH2
CN501
CN201
NTSC(L)
PB SPEC(L)
NC
AVG FM
GND
REC COLOR
PB FM
REC FM
PB FM/COL.
GND
SP(L)
REC ST(L)
D.FF
SW5V
C. SYNC
HEAD. SEL
A/M/S SEL
COL. ROT
CN1001
REC(L)
A. FF
H.REC ST(L)
A. PB FM
A. REC FM
GND
CN4
CN401
CTL HEAD(+)
CTL HEAD(-)
GND
CN1
REC
PB
GND(A)
A. ERASE
CN2
FULL ERASE
GND(A)
F.E
CN1
AE
R/P
CTL
12 A/C HEAD
CN402
MOTOR13V
GND(H)
FG/PG
V. CTL
M
MOTOR13V
GND(H)
FG/PG
V. CTL
58 DRUM MOTOR
CAP REV
SW5V
CAP FG
GND(C)
GND(H)
CAP CTL(V)
MOTOR13V
57 CAP MDA
CN601
START. S
CASS(L)
GND(C)
LS B
TU FG
SW5V
REC SAFE
LS A
END. S
GND(H)
CAP REV(L)
CAP CTL V
CAP FG
M13V
LCM2
LCM1
CN1
CN2
CN4
M12V
LCM1
GND
LCM2
CN1
55 LOADING MDA
56 CASS. HOUSING
CN2
CN3
CASS(L)
MOTOR 12V
GND
START. S
51 DECK TERMINAL

NO	NAME
75	HYPER BASS
58	DRUM MOTOR
57	CAP. MDA
56	CASS. HOUSING
55	LOADING MDA
51	DECK TERMINAL
43	PRE/REC AMP
41	U. DRUM
36	SW/JACK
35	MEMORY
28	DISPLAY/SW
14	DEMOD.
12	A/C HEAD
09	AUDIO UNIT
08	TUNER
07	IF
05	VIDEO UNIT
03	MAIN
01	SW. REG

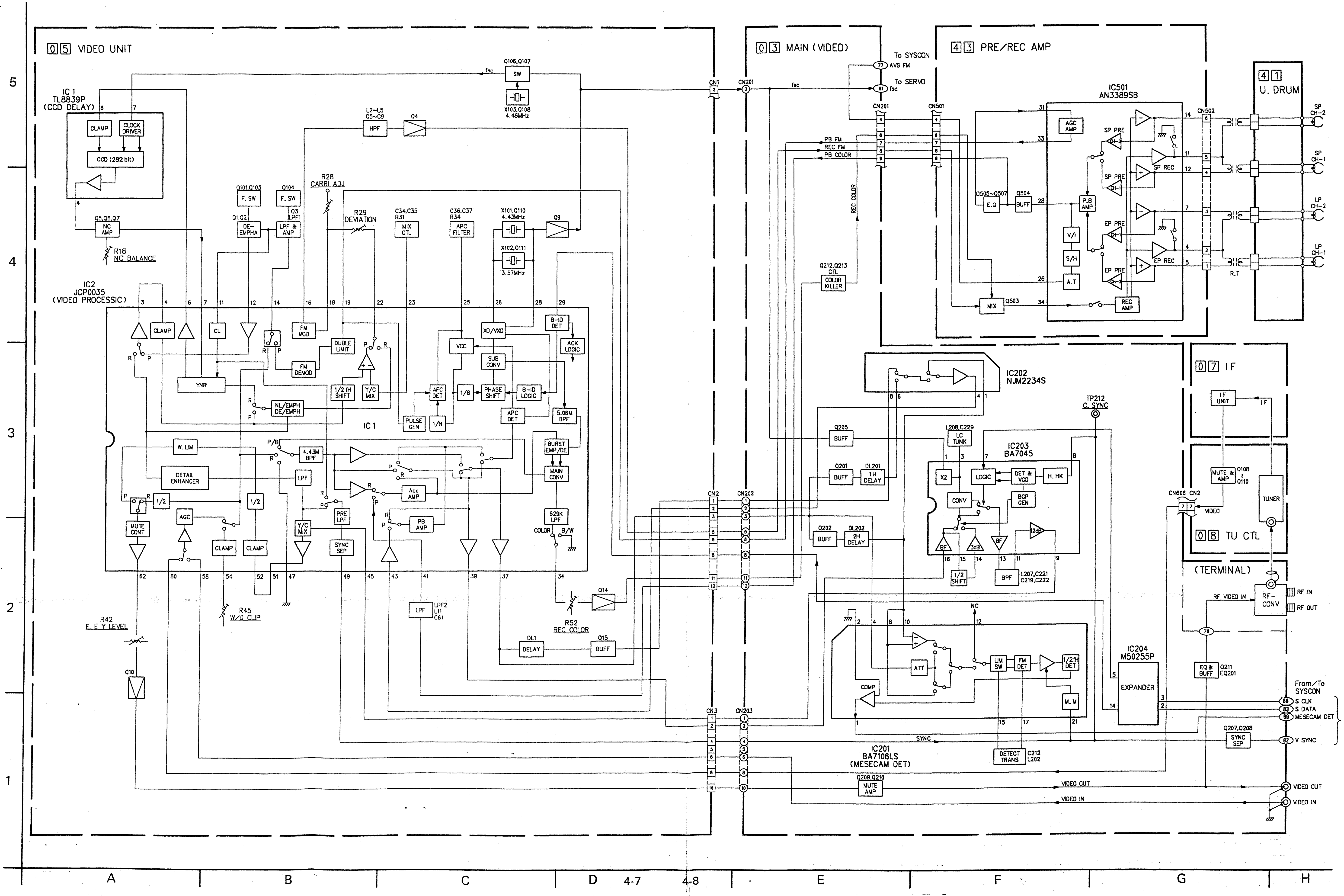
NOTES: 1. < > WR☐ indications on Board Interconnections are as shown below.
< > : Printed board block number in the parts list.
WR☐ : Reference number of special wire in the parts list.

4.2 SYSCON/SERVO BLOCK DIAGRAM

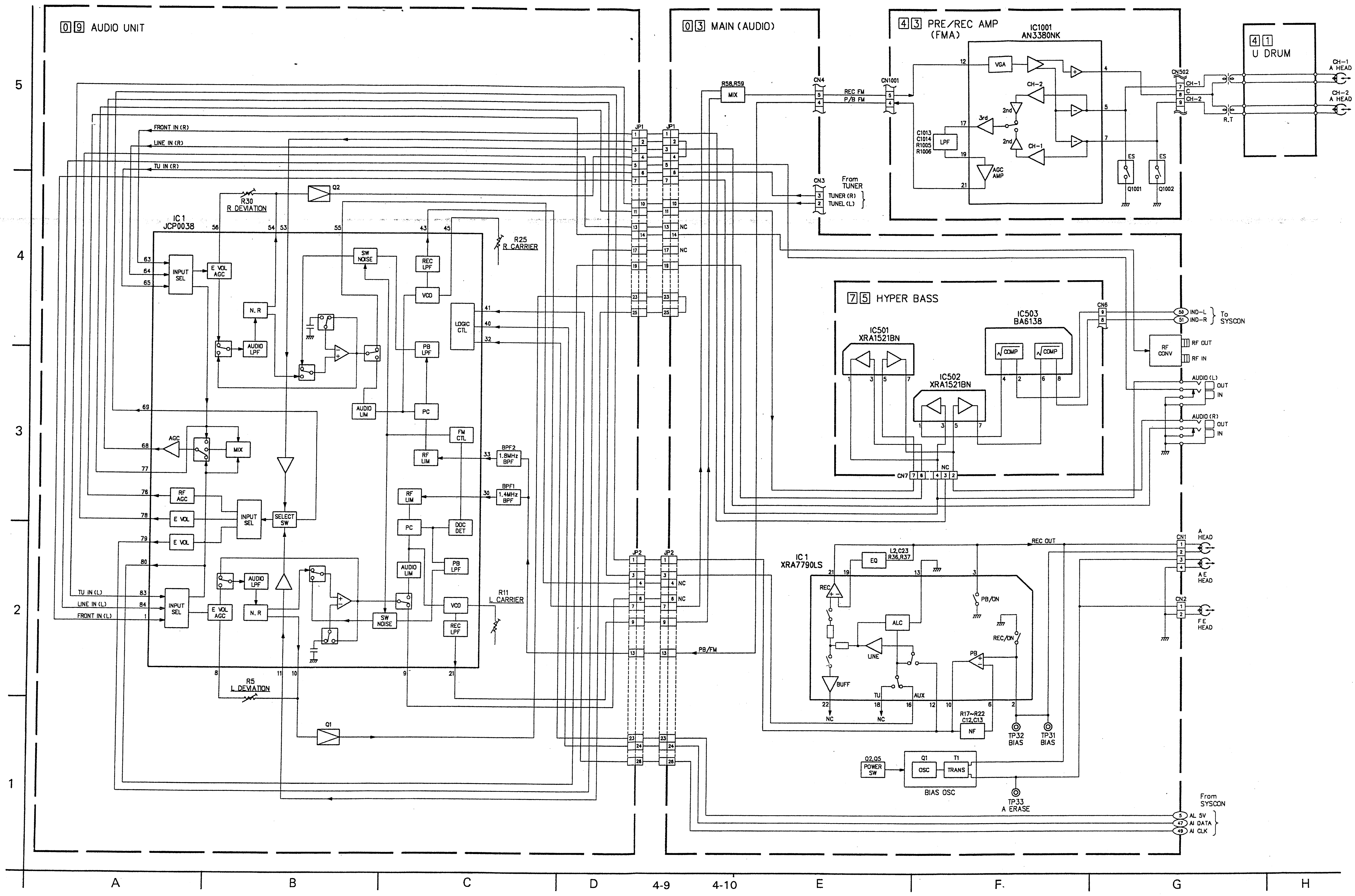


5
4
3
2
1
A
B
C
D
E
F
G
H
1 2 A/C HEAD
CTL
HEAD
CN1
CN401
0 3 MAIN (SYSCON/SERVO)
IC441
LVA521S
Q441
OSC
X441
3.58MHz
R402~R405
C402~C404
N.F
TP401
CTL P
TP411
DRUM FF
DUTY CTL
VISS DET
Fsc
C/D
C/D
CTL DELAY
DRUM REF
SYNC SEP
CAP F/V
CAP P/D
DRUM P/D
DRUM F/V
FF VP GEN
MODE A
NTSC H
N.F FILTER
R410~R417
C413,C414
CAPSTAN FILTER
R418,R419
C415,C416
DRUM FILTER
R423,R424
C417,C418
N.F FILTER
R429~R432
C410,C411
IC401
JCP0039
(SERVO PROCESS CPU)
5 8 DRUM MOTOR
CN1
CN402
IC601
HD6433927A51F
(SYSCON CPU)
F DATA
LCM 2
LCM 1
NTSC (L)
CCIR (L)
MESECAM
CAP REV
VP CTL
END SENS
REC SF
LSB
LSA
START S
CASST L
CTL CLK
CFG C/D
DUTY I/O
DRUM FF
JS A
JS B
DRUM V
CAP V
SECAM DET
S-CLK
M CE
3.58 DET
P DOWN
X2
X1
OSC1
OSC2
RESET
CTL CD
TU FG
Q601
POWR DOWN
X601
CF601
C614
TIMER CLOCK
IC602
S-80728AN
POWER RESET
C604,R610
TIME CONST
31 3.58 DET
68 CCIR (L)
50 A LVLL
69 MESECAM DET
74 NTSC LOW
57 C SYNC IN
61 Fsc
From 0 3 VIDEO
19 SW 5V
From 0 3 REGULATOR
5 6 CASS HOUSING
PS3
CASS SENS
Q2
START SENS
CN1
CN3
5 1 DECK TERMINAL
CN601
CN1
PS1
TU REEL SENS
S3
MODE SENSOR
CAP REV
CAP FG
Q3
END SENS
S2
REC SAFE
CAP CTL V
CN4
CN2
5 7 CAPSTAN MDA
JOG SHUTTLE
CN603
3 5 MEMORY
IC201
CN607
CN1
5 5 LOADING MDA
IC1
BA6418N
MDA
LOADING MOTOR

4.3 VIDEO BLOCK DIAGRAM

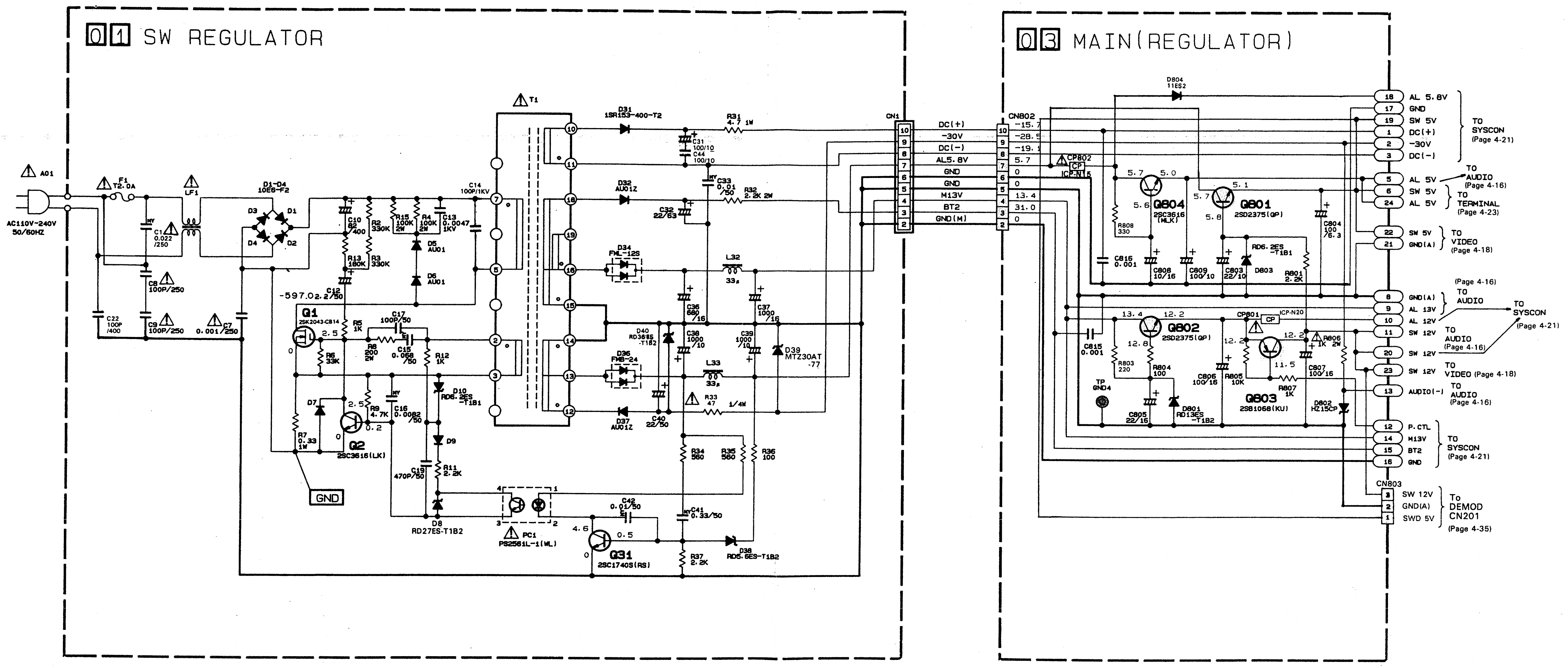

05 VIDEO UNIT
IC1 TL8839P (CCD DELAY)
CLAMP
CLOCK DRIVER
CCD (282 bit)
Q5,Q6,Q7 NC AMP
R18 NC BALANCE
IC2 JCP0035 (VIDEO PROCESSOR)
Q101,Q103 F. SW
Q1,Q2 DE-EMPHA
Q104 F. SW
Q3 LPF1 LPF & AMP
L2~L5 C5~C9 HPF
Q4
R28 CARRI ADJ
R29 DEVIATION
C34,C35 R31 MIX CTL
C36,C37 R34 APC FILTER
X101,Q110 4.43MHz
X102,Q111 3.57MHz
Q9
Q106,Q107 SW
X103,Q108 4.46MHz
fsc
CLAMP
CL
YNR
FM MOD
FM DEMOD
DUBLE LIMIT
1/2 fH SHIFT
Y/C MIX
NL/EMPH DE/EMPH
AFC DET
PULSE GEN
1/N
1/8
VCO
XO/VXO
SUB CONV
PHASE SHIFT
B-ID LOGIC
B-ID DET
ACK LOGIC
APC DET
5.06M BPF
IC1
W. LIM
DETAIL ENHANCER
4.43M BPF
LPF
Acc AMP
PB AMP
PRE LPF
SYNC SEP
Y/C MIX
BURST EMP/DE
MAIN CONV
629K LPF
COLOR
B/W
MUTE CONT
AGC
1/2
CLAMP
P/B
R
P
R42 E. E Y LEVEL
R45 W/D CLIP
Q10
LPF2 L11 C61
LPF
DL1 DELAY
Q15 BUFF
Q14
R52 REC COLOR
CN1
CN2
CN3
03 MAIN (VIDEO)
CN201
CN202
CN203
To SYSCON
77 AVG FM
To SERVO
61 fsc
PB FM
REC FM
PB COLOR
REC COLOR
Q212,Q213 CTL COLOR KILLER
IC202 NJM2234S
Q205 BUFF
Q201 BUFF
DL201 1H DELAY
Q202 BUFF
DL202 2H DELAY
TP212 C. SYNC
L208,C229 LC TUNK
IC203 BA7045
X2
LOGIC
DET & VCO
H. HK
CONV
BGP GEN
BF
3dB
12dB
1/2 SHIFT
BPF
L207,C221 C219,C222
IC201 BA7106LS (MESECAM DET)
NC
ATT
LIM SW
FM DET
1/2H DET
COMP
M. M
DETECT TRANS
C212 L202
SYNC
Q209,Q210 MUTE AMP
VIDEO OUT
VIDEO IN
IC204 M50255P
EXPANDER
43 PRE/REC AMP
CN501
IC501 AN3389SB
AGC AMP
SP PRE
CH-2
CH-1
SP REC
EP PRE
EP REC
Q505~Q507 E.Q
Q504 BUFF
P.B AMP
V/I
S/H
A.T
MIX
Q503
REC AMP
CN502
R.T
41 U. DRUM
SP CH-2
SP CH-1
LP CH-2
LP CH-1
07 IF
IF UNIT
IF
08 TU CTL
MUTE & AMP
Q108 Q110
TUNER
CN606
CN2
VIDEO
(TERMINAL)
RF VIDEO IN
RF-CONV
RF IN
RF OUT
78
EQ & BUFF
Q211 EQ201
From/To SYSCON
58 S CLK
83 S DATA
59 MESECAM DET
Q207,Q208 SYNC SEP
82 V SYNC
VIDEO OUT
VIDEO IN
A
B
C
D
E
F
G
H
1
2
3
4
5

4.4 AUDIO BLOCK DIAGRAM

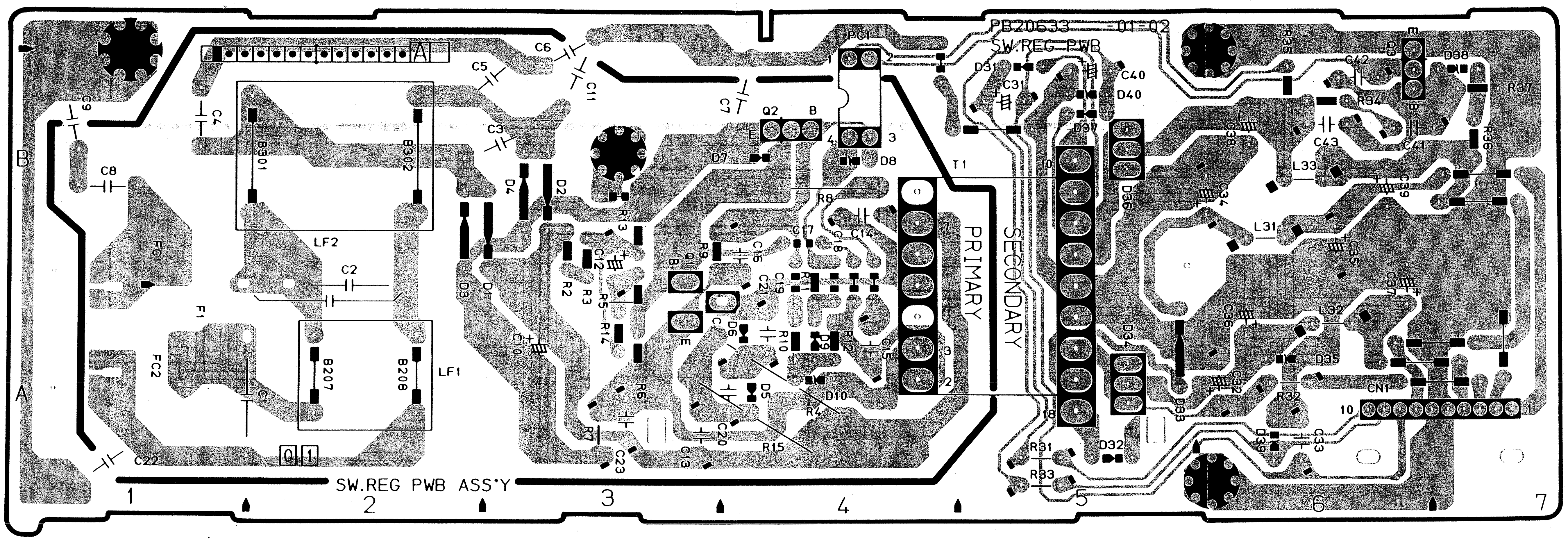

09 AUDIO UNIT
03 MAIN (AUDIO)
43 PRE/REC AMP (FMA)
IC1001 AN3380NK
41 U DRUM
75 HYPER BASS
IC1 JCP0038
IC1 XRA7790LS
IC501 XRA1521BN
IC502 XRA1521BN
IC503 BA6138
FRONT IN (R)
LINE IN (R)
TU IN (R)
TU IN (L)
LINE IN (L)
FRONT IN (L)
R30 R DEVIATION
R25 R CARRIER
R5 L DEVIATION
R11 L CARRIER
Q1
Q2
INPUT SEL
E VOL AGC
N.R
AUDIO LPF
SW NOISE
REC LPF
VCO
PB LPF
LOGIC CTL
AUDIO LIM
PC
FM CTL
RF LIM
BPF2 1.8MHz BPF
BPF1 1.4MHz BPF
DOC DET
AGC
MIX
RF AGC
E VOL
SELECT SW
JP1
JP2
NC
R58,R59
MIX
CN4
CN3
From TUNER
TUNER (R)
TUNEL (L)
CN1001
REC FM
P/B FM
VGA
CH-2
CH-1
2nd
3rd
C1013 C1014 R1005 R1006
LPF
AGC AMP
ES
Q1001
Q1002
CN502
CH-1
C
CH-2
R.T
CH-1 A HEAD
CH-2 A HEAD
CN6
IND-L
IND-R
To SYSCON
COMP
RF CONV
RF OUT
RF IN
AUDIO (L)
AUDIO (R)
OUT
IN
CN7
REC OUT
EQ
L2,C23 R36,R37
PB/ON
REC/ON
REC
ALC
LINE
BUFF
TU
AUX
PB
R17~R22 C12,C13
NF
TP32 BIAS
TP31 BIAS
CN1
A HEAD
AE HEAD
CN2
FE HEAD
PB/FM
Q2,Q5 POWER SW
Q1 OSC
T1 TRANS
BIAS OSC
TP33 A ERASE
From SYSCON
AL 5V
AI DATA
AI CLK
A
B
C
D
E
F
G
H
1
2
3
4
5

4.5 SWITCHING REGULATOR & REGULATOR SCHEMATIC DIAGRAMS

NOTE: For measurement of RED shaded portions, mechanism assembly with MAIN board assembly should be removed from the bottom chassis.


01 SW REGULATOR
03 MAIN(REGULATOR)
A01
AC110V-240V 50/60HZ
F1 T2.0A
LF1
C1 0.022 /250
C8 100P/250
C9 100P/250
C22 100P /400
C7 0.001/250
D1-D4 10E6-F2
D1 D2 D3 D4
C10 82 /400
R2 330K
R15 100K 2W
R4 100K 2W
C13 0.0047 1KV
C14 100P/1KV
R13 180K
R3 330K
D5 AU01
D6 AU01
-597.0
C12 2.2/50
Q1 2SK2043-CB14
R5 1K
C17 100P/50
R8 200 2W
C15 0.068 /50
R12 1K
R6 33K
D7
R7 0.33 1W
R9 4.7K
C16 0.0082 /50
Q2 2SC3616(LK)
D10 RD6.2ES -T1B1
D9
R11 2.2K
C19 470P/50
D8 RD27ES-T1B2
GND
PC1 PS2561L-1(WL)
T1
D31 1SR153-400-T2
R31 4.7 1W
C31 100/10
C44 100/10
C33 0.01 /50
D32 AU01Z
R32 2.2K 2W
C32 22/63
D34 FML-12S
L32 33μ
C36 680 /16
C37 1000 /16
D40 RD36ES -T1B2
C38 1000 /10
C39 1000 /10
D39 MTZ30AT -77
D36 FMB-24
L33 33μ
R33 47 1/4W
D37 AU01Z
C40 22/50
R34 560
R35 560
R36 100
C42 0.01/50
C41 0.33/50
Q31 2SC1740S(RS)
R37 2.2K
D38 RD5.6ES-T1B2
4.6
0.5
0
2.5
0.2
CN1
DC(+)
-30V
DC(-)
AL5.8V
GND
GND
M13V
BT2
GND(M)
CN802
-15.7
-28.5
-19.1
5.7
0
0
13.4
31.0
0
CP802 CP ICP-N15
D804 11ES2
Q804 2SC3616 (MLK)
Q801 2SD2375(QP)
5.7 5.0 5.6 5.1 5.8
R808 330
C816 0.001
C808 10/16
C809 100/10
C803 22/10
RD6.2ES -T1B1 D803
R801 2.2K
C804 100 /6.3
Q802 2SD2375(QP)
13.4 12.2 12.8 11.5
CP801 CP ICP-N20
R806 1K 2W
C815 0.001
R803 220
R804 100
TP GND4
C805 22/16
D801 RD13ES -T1B2
C806 100/16
R805 10K
R807 1K
C807 100/16
Q803 2SB1068(KU)
D802 HZ15CP
18 AL 5.8V
17 GND
19 SW 5V
1 DC(+)
2 -30V
3 DC(-)
TO SYSCON (Page 4-21)
5 AL 5V
TO AUDIO (Page 4-16)
6 SW 5V
24 AL 5V
TO TERMINAL (Page 4-23)
22 SW 5V
21 GND(A)
TO VIDEO (Page 4-18)
(Page 4-16) TO AUDIO
8 GND(A)
9 AL 13V
10 AL 12V
TO SYSCON (Page 4-21)
11 SW 12V
TO AUDIO (Page 4-16)
20 SW 12V
23 SW 12V
TO VIDEO (Page 4-18)
13 AUDIO(-)
TO AUDIO (Page 4-16)
12 P.CTL
14 M13V
15 BT2
16 GND
TO SYSCON (Page 4-21)
CN803
3 SW 12V
2 GND(A)
1 SWD 5V
To DEMOD CN201 (Page 4-35)
5
4
3
2
1
A
B
C
D
E
F
G
H

4.6 SWITCHING REGULATOR CIRCUIT BOARD


PB20633 -01-02
SW.REG PWB
SW.REG PWB ASS'Y
PRIMARY
SECONDARY
A
B
1
2
3
4
5
6
7
PC1
T1
Q2
Q1
E
B
C
CN1
10
LF1
LF2
F1
FC1
FC2
B207
B208
B301
B302
C1
C2
C3
C4
C5
C6
C7
C8
C9
C10
C11
C12
C13
C14
C16
C17
C18
C19
C20
C21
C22
C23
C31
C32
C33
C34
C35
C36
C37
C38
C39
C40
C41
C42
C43
D1
D2
D3
D4
D5
D6
D7
D8
D9
D10
D31
D32
D33
D34
D35
D36
D37
D38
D39
D40
R1
R2
R3
R4
R5
R6
R7
R8
R9
R10
R11
R12
R13
R14
R15
R31
R32
R33
R34
R35
R36
R37
L31
L32
L33
Q31
0
1

MAIN COMPONENT PARTS LOCATION GUIDE <SW REG BOARD>

REF. No.	LOCATION
TRANSISTOR	
Q1	3B
Q2	4B
Q31	6B

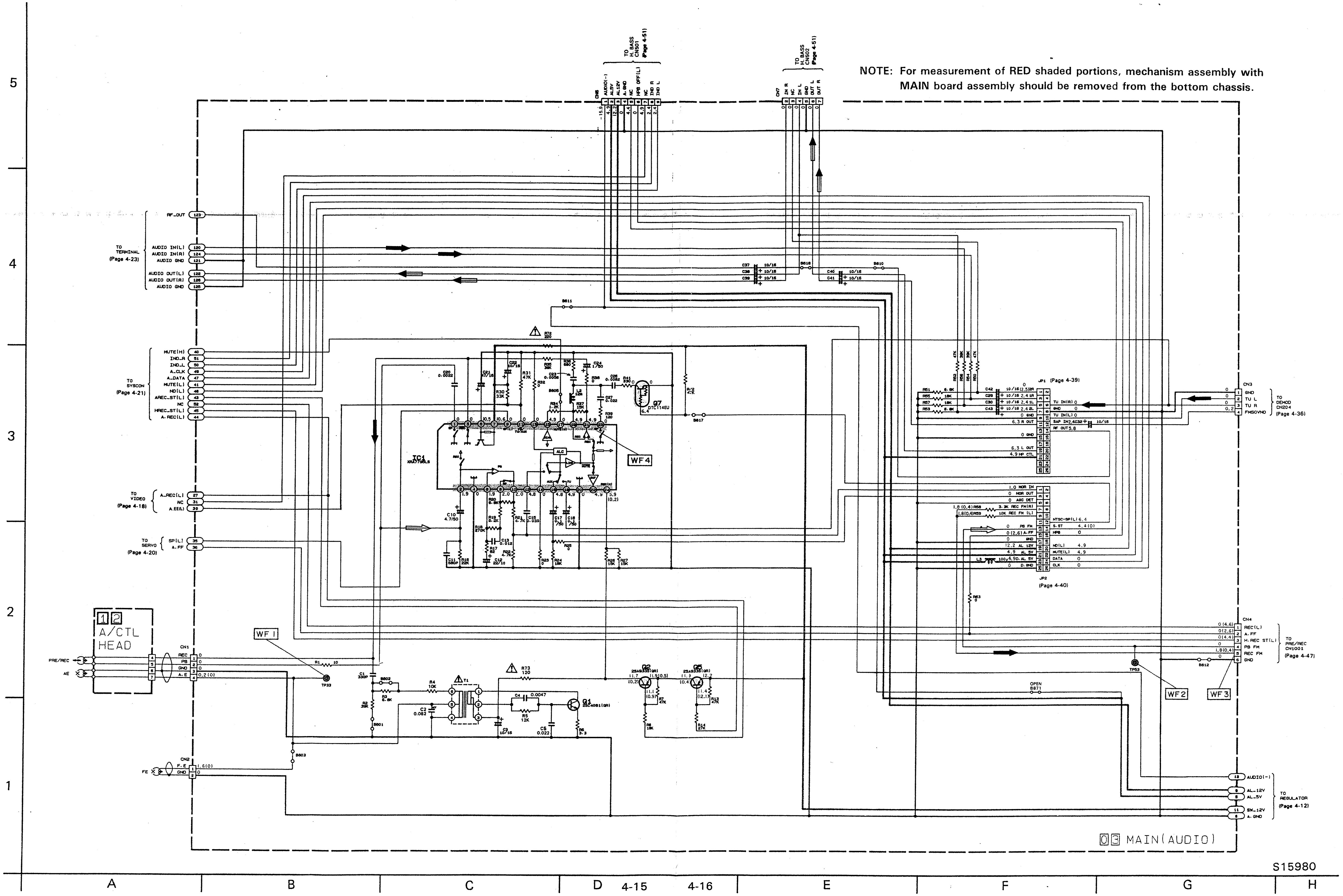
REF. No.	LOCATION
DIODE	
D1	3B
D2	3B
D3	2B
D4	3B
D5	4A
D6	4A
D7	4B
D8	4B
D9	4A

REF. No.	LOCATION
DIODE	
D10	4A
D31	5B
D32	5A
D34	5A
D35	6A
D36	5B
D37	5B
D38	7B
D39	6A

REF. No.	LOCATION
CONNECTOR	
CN1	6A

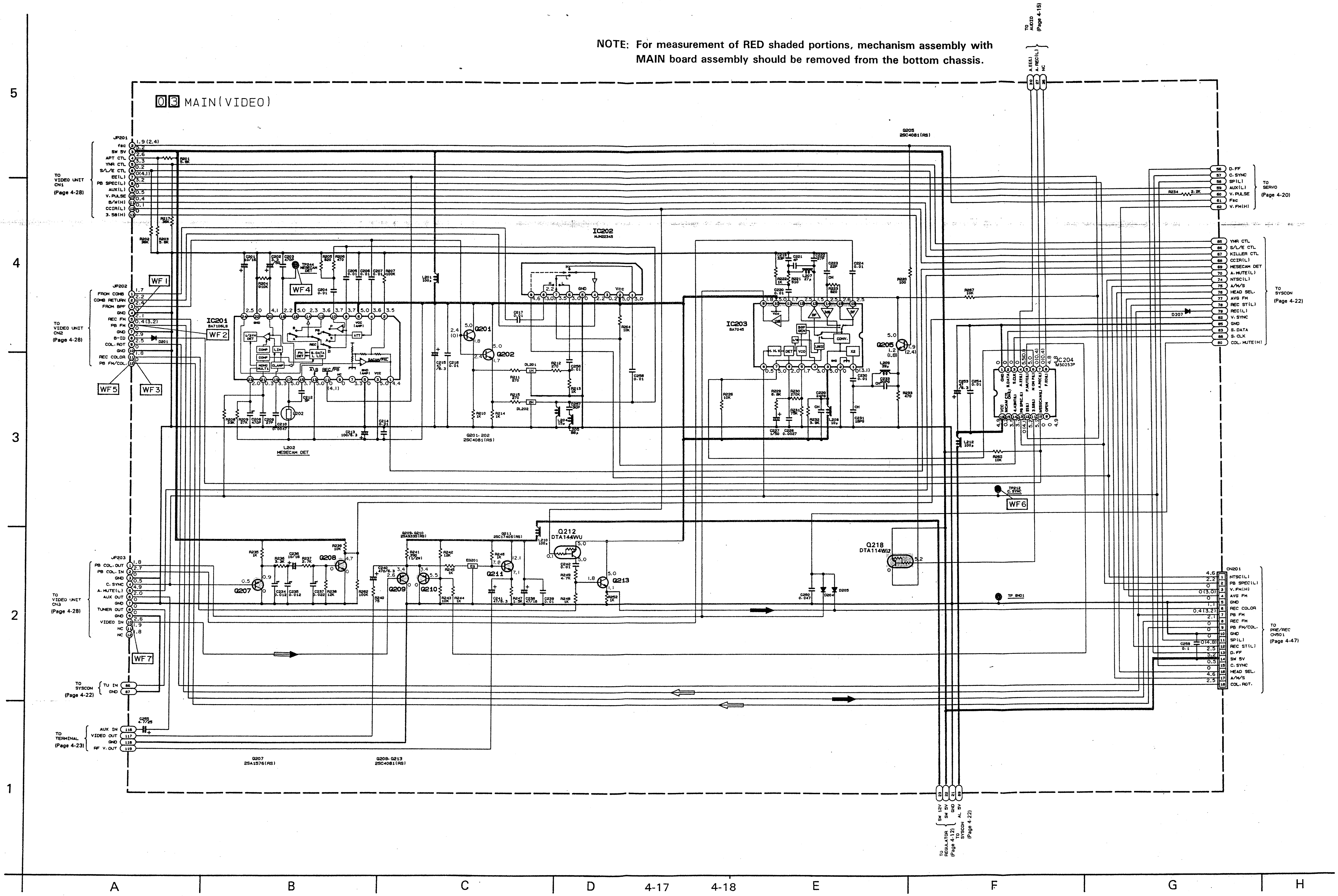
4.7 AUDIO SCHEMATIC DIAGRAM

NOTE: For measurement of RED shaded portions, mechanism assembly with MAIN board assembly should be removed from the bottom chassis.


TO H.BASS CN501 (Page 4-51)
CN6
AUDIO(-)
AL5V
AL12V
A.GND
NC
HPB OFF(L)
NC
IND R
IND L
TO H.BASS CN502 (Page 4-51)
CN7
IN R
NC
IN L
GND
OUT L
OUT R
TO TERMINAL (Page 4-23)
RF_OUT 123
AUDIO IN(L) 120
AUDIO IN(R) 124
AUDIO GND 121
AUDIO OUT(L) 122
AUDIO OUT(R) 126
AUDIO GND 125
TO SYSCON (Page 4-21)
MUTE(H) 40
IND_R 51
IND_L 50
A_CLK 49
A_DATA 47
MUTE(L) 41
ND(L) 48
AREC_ST(L) 43
NC 52
HREC_ST(L) 45
A.REC(L) 44
TO VIDEO (Page 4-18)
A_REC(L) 27
NC 31
A.EE(L) 30
TO SERVO (Page 4-20)
SP(L) 35
A.FF 36
IC1 XRA7790LS
Q7 DTC114EU
WF4
JP1 (Page 4-39)
JP2 (Page 4-40)
CN3
GND
TU L
TU R
FMSOVND
TO DEMOD CN204 (Page 4-36)
CN4
REC(L)
A.FF
H.REC ST(L)
PB FM
REC FM
GND
TO PRE/REC CN1001 (Page 4-47)
WF2
WF3
TP53
B812
1 2 A/CTL HEAD
PRE/REC
AE
FE
CN1
REC
PB
GND
A.E
CN2
F.E
GND
WF1
TP33
T1
Q1 2SC4081(QR)
Q2 2SA933S(QR)
Q5 2SA933S(QR)
OPEN B871
AUDIO(-) 13
AL_12V 9
AL_5V 8
SW_12V 11
A.GND 6
TO REGULATOR (Page 4-12)
03 MAIN(AUDIO)
S15980
5
4
3
2
1
A
B
C
D
E
F
G
H

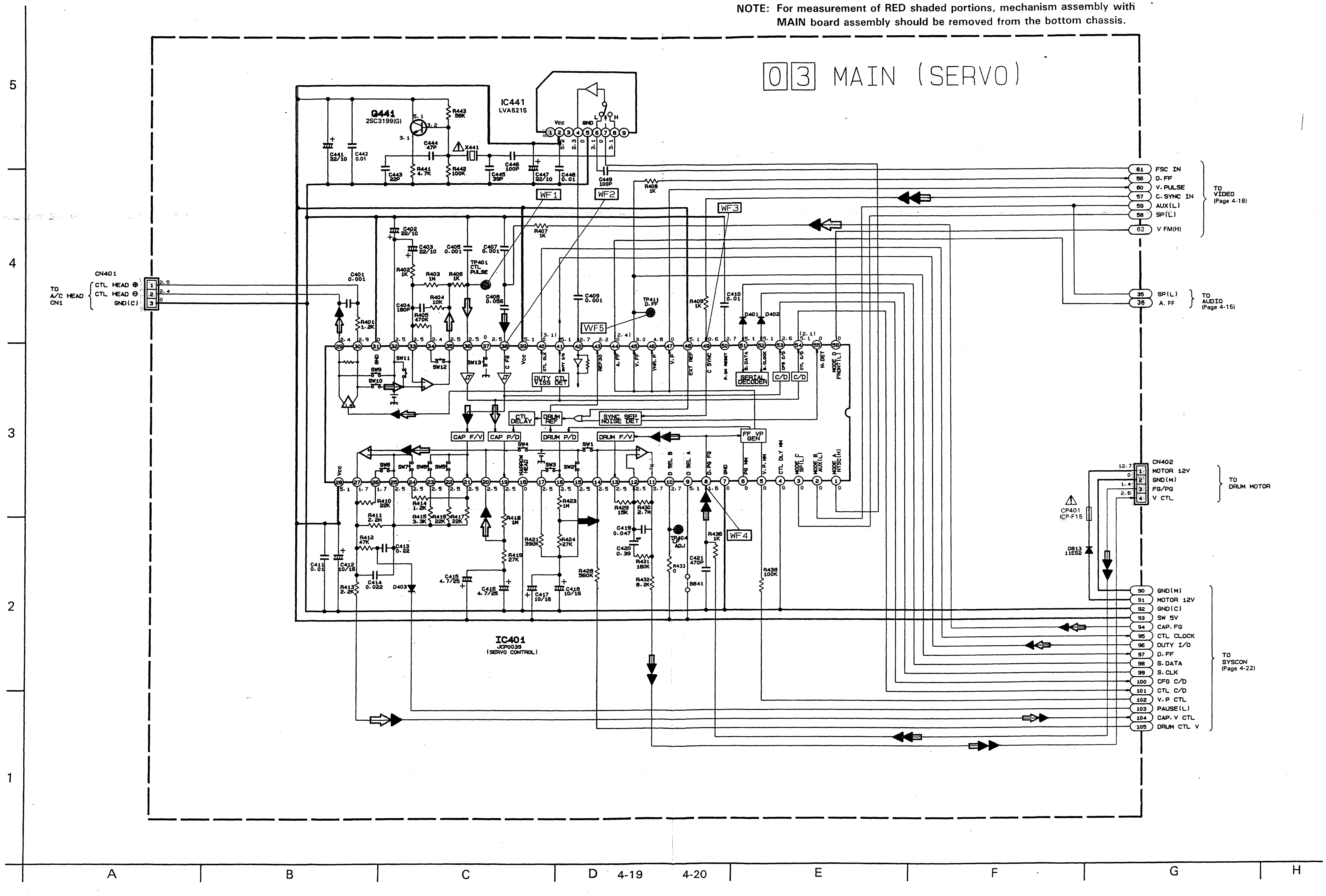
4.8 VIDEO SCHEMATIC DIAGRAM

NOTE: For measurement of RED shaded portions, mechanism assembly with MAIN board assembly should be removed from the bottom chassis.


03 MAIN(VIDEO)
TO AUDIO (Page 4-15)
A.EE(L)
A.REC(L)
NC
30
27
26
JP201
fsc
SW 5V
APT CTL
YNR CTL
S/L/E CTL
EE(L)
PB SPEC(L)
AUX(L)
V.PULSE
B/W(H)
CCIR(L)
3.58(H)
TO VIDEO UNIT CN1 (Page 4-28)
R201 5.6K
R217 36K
R202 36K
R203 5.6K
JP202
FROM COMB
COMB RETURN
FROM BPF
GND
REC FM
PB FM
GND
B-ID
COL.ROT
GND
REC COLOR
PB FM/COL.
TO VIDEO UNIT CN2 (Page 4-28)
D201
WF1
WF2
WF3
WF4
WF5
WF6
WF7
IC201
BA7106LS
1/2fH DET
COMP
LIM
MONO MULTI
CLAMP
FM DET
S.DATA L LIM
ATT
SACAM/PAL
REC/PB
VCC (AMP)
GND (AMP)
TP244 MESECAM DET
L202 MESECAM DET
L201 100μ
IC202
NJM2234S
Q201
Q202
Q201, 202 2SC4081(RS)
DL201
DL202
IC203
BA7045
H.H.K
DET
VCO
LOGIC
BGP GEN
CONV.
X2
BF
3dB
Q205
Q205 2SC4081(RS)
IC204
M50253P
GND
S.DATA
S.CLK
A.EE(L)
P.MUTE(L)
N ON P(L)
A.REC(L)
F.ED(L)
VCC
HICAM CTL ON(L)
4.43NT(L)
PB SPEC(L)
EE(L)
3.58(L)
MESECAM(L)
OPEN
R234 2.2K
D.FF
C.SYNC
SP(L)
AUX(L)
V.PULSE
Fsc
V.FM(H)
TO SERVO (Page 4-20)
YNR CTL
S/L/E CTL
KILLER CTL
CCIR(L)
MESECAM DET
A.MUTE(L)
NTSC(L)
A/M/S
HEAD SEL.
AVG FM
REC ST(L)
REC(L)
V.SYNC
GND
S.DATA
S.CLK
COL.MUTE(H)
TO SYSCON (Page 4-22)
D207
R267 10K
R263 10K
L212 100μ
TP212 C.SYNC
JP203
PB COL.OUT
PB COL.IN
GND
C.SYNC
A.MUTE(L)
AUX OUT
GND
TUNER OUT
GND
VIDEO IN
NC
NC
TO VIDEO UNIT CN3 (Page 4-28)
TU IN
GND
TO SYSCON (Page 4-22)
AUX IN
VIDEO OUT
GND
RF V.OUT
TO TERMINAL (Page 4-23)
C255 4.7/25
Q207
Q208
Q209
Q210
Q211
Q212 DTA144WU
Q213
Q218 DTA114WU
Q209, Q210 2SA933S(RS)
Q211 2SC1740S(RS)
Q207 2SA1576(RS)
Q208-Q213 2SC4081(RS)
L210 100μ
EQ201
D204
D205
TP GND1
CN201
NTSC(L)
PB SPEC(L)
V.FM(H)
AVG FM
GND
REC COLOR
PB FM
REC FM
PB FM/COL.
GND
SP(L)
REC ST(L)
D.FF
SW 5V
C.SYNC
HEAD SEL.
A/M/S
COL.ROT.
C259 0.1
TO PRE/REC CN501 (Page 4-47)
23
22
21
89
SW 12V
SW 5V
GND
AL 5V
TO REGULATOR (Page 4-12)
TO SYSCON (Page 4-22)
1
2
3
4
5
A
B
C
D
E
F
G
H

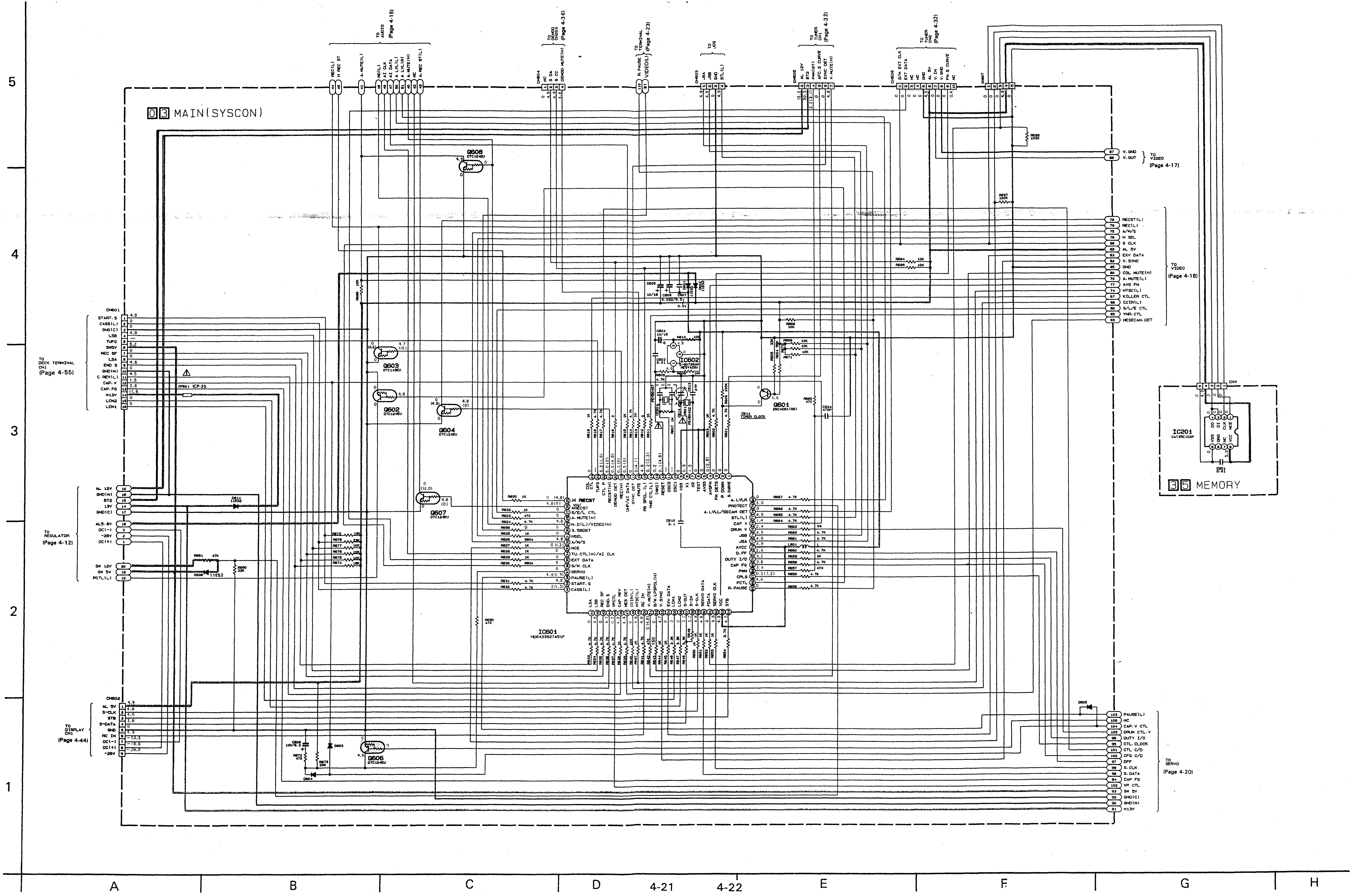
4.9 SERVO SCHEMATIC DIAGRAM

NOTE: For measurement of RED shaded portions, mechanism assembly with MAIN board assembly should be removed from the bottom chassis.


03 MAIN (SERVO)
Q441
2SC3199(G)
IC441
LVA521S
Vcc
GND
R443 56K
R441 4.7K
R442 100K
C441 22/10
C442 0.01
C443 22P
C444 47P
X441
C445 39P
C446 100P
C447 22/10
C448 0.01
C449 100P
R408 1K
WF1
WF2
WF3
WF4
WF5
C402 22/10
C403 22/10
C405 0.001
C407 0.001
R407 1K
TP401 CTL PULSE
C401 0.001
R401 1.2K
R402 1K
R403 1M
R406 1K
R404 10K
R405 470K
C404 180P
C408 0.056
C409 0.001
TP411 D.FF
R409 1K
C410 0.01
D401
D402
CN401
TO A/C HEAD CN1
CTL HEAD ⊕
CTL HEAD ⊖
GND(C)
SW9
SW10
SW11
SW12
SW13
DUTY CTL VISS DET
SERIAL DECODER
C/D
CTL DELAY
DRUM REF
SYNC SEP NOISE DET
CAP F/V
CAP P/D
DRUM P/D
DRUM F/V
FF VP GEN
SW1
SW2
SW3
SW4
SW5
SW6
SW7
SW8
NARROW HEAD
R410 22K
R411 2.2M
R412 47K
R413 2.2K
R414 1.2K
R415 3.3K
R416 22K
R417 22K
R418 1M
R419 27K
R421 390K
R423 1M
R424 27K
R428 560K
R429 15K
R430 2.7M
R431 160K
R432 8.2K
R433 0
R436 1K
R438 100K
C411 0.01
C412 10/16
C413 0.22
C414 0.022
C415 4.7/25
C416 4.7/25
C417 10/16
C418 10/16
C419 0.047
C420 0.39
C421 470P
D403
TP404 ADJ
B841
IC401
JCP0039
(SERVO CONTROL)
CN402
MOTOR 12V
GND(M)
FG/PG
V CTL
TO DRUM MOTOR
CP401 ICP-F15
D813 11ES2
61 FSC IN
56 D.FF
60 V.PULSE
57 C.SYNC IN
59 AUX(L)
58 SP(L)
62 V FM(H)
TO VIDEO (Page 4-18)
35 SP(L)
36 A.FF
TO AUDIO (Page 4-15)
90 GND(M)
91 MOTOR 12V
92 GND(C)
93 SW 5V
94 CAP.FG
95 CTL CLOCK
96 DUTY I/O
97 D.FF
98 S.DATA
99 S.CLK
100 CFG C/D
101 CTL C/D
102 V.P CTL
103 PAUSE(L)
104 CAP.V CTL
105 DRUM CTL V
TO SYSCON (Page 4-22)
CTL CLK
DUTY I/O
REF30
A.FF
V.FF
YNR.P
V.P
EXT REF
C SYNC
P.ON RESET
S.DATA
S.CLOCK
CFG C/D
CTL C/D
N.DET
MODE D FRONT(L)
C FG
D SEL B
D SEL A
D.PG FG
GND
PG MM
V.P. MM
CTL DLY MM
MODE C SP(L)
MODE B AUX(L)
MODE A NTSC(H)
1
2
3
4
5
A
B
C
D
E
F
G
H

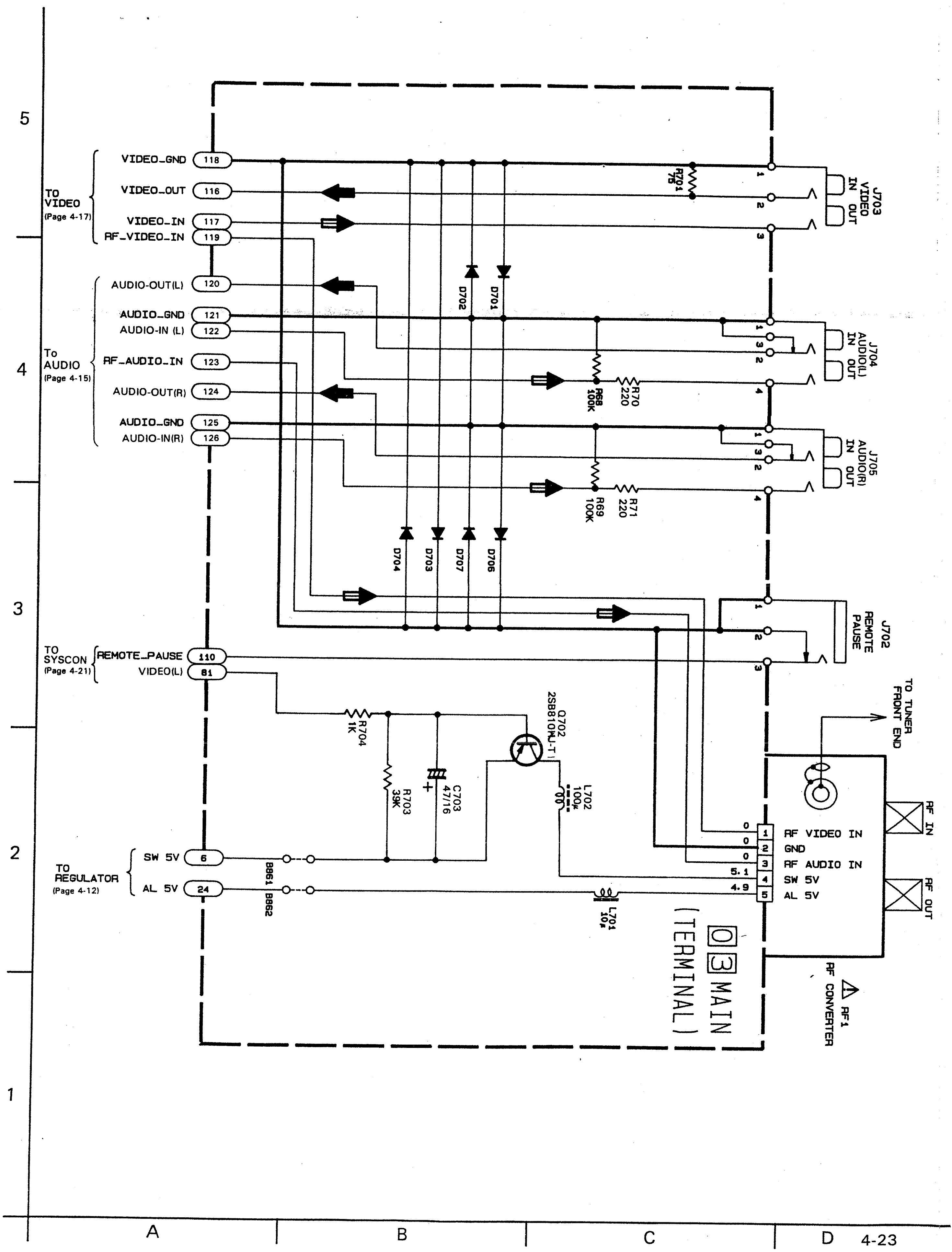
4.10 SYSTEM CONTROL & MEMORY SCHEMATIC DIAGRAMS

NOTE: For measurement of RED shaded portions, mechanism assembly with MAIN board assembly should be removed from the bottom chassis.



5
4
3
2
1
A
B
C
D
E
F
G
H
03 MAIN(SYSCON)
35 MEMORY
TO AUDIO (Page 4-15)
REC(L)
H REC ST
A.MUTE(L)
ND(L)
AI CLK
AI DATA
A LVL(L)
A LVL(R)
A.MUTE(H)
NC
A.REC ST(L)
TO DEMOD CN203 (Page 4-36)
CN604
NC
S DA
S CC
DEMOD.MUTE(H)
TO TERMINAL (Page 4-23)
R.PAUSE
VIDEO(L)
TO JOG
CN603
JSA
JSB
GND
STL(L)
TO TUNER CN1 (Page 4-32)
CN605
AL 12V
BT2
PWM(BT)
AFC.S CURVE
SYNC DET
V.MUTE(H)
TO TUNER CN2 (Page 4-32)
CN606
S/H EXT CLK
EXT DATA
NC
NC
GND
AL 5V
V.IN
V.GND
FM.S CURVE
NC
CN607
R699 100K
V.GND
V.OUT
TO VIDEO (Page 4-17)
R697 100K
RECST(L)
REC(L)
A/M/S
H SEL
S CLK
AL 5V
EXV DATA
V.SYNC
GND
COL MUTE(H)
A.MUTE(L)
AVG FM
NTSC(L)
KILLER CTL
CCIR(L)
S/L/E CTL
YNR.CTL
MESECAM.DET
TO VIDEO (Page 4-18)
CN601
START.S
CASS(L)
GND(C)
LSB
TUFG
SW5V
REC SF
LSA
END S
GND(M)
C.REV(L)
CAP.V
CAP.FG
M13V
LCM2
LCM1
TO DECK TERMINAL CN1 (Page 4-55)
CP601 ICP-25
Q608 DTC124EU
Q603 DTC143EU
Q602 DTC124EU
Q604 DTC124EU
Q607 DTC124EU
Q606 DTC124EU
Q601 2SC4081(RS)
C614 TIMER CLOCK
IC602 S-80728AN RE7A2B4
X601 PEVB0422
CF601 PEVB0497
C610 0.1
AL 12V
GND(M)
BT2
13V
GND(C)
AL5.8V
DC(-)
-28V
DC(+)
SW 12V
SW 5V
PCTL(L)
TO REGULATOR (Page 4-12)
D611 11ES2
R681 47K
D606 11ES2
R680 33K
CN602
AL 5V
S-CLK
STB
S-DATA
GND
RC IN
DC(-)
DC(+)
-28V
TO DISPLAY CN1 (Page 4-44)
D603
D604
IC601
HD6433927A51F
H RECST
VH/ARECST
S/E/L CTL
A.MUTE(H)
N.D(L)/VIDEO(H)
3.58DET
HSEL
A/M/S
MCE
TU.CTL(H)/AI CLK
EXT DATA
S/M CLK
SERVO
PAUSE(L)
START.S
CASS(L)
COL CTL
TUFG
CTL P
RECST(H)
DEMOD DET
REC(H)
UHF/AI DATA
SYNC DET
PMUTE
PB SPCL.(L)
YNR CTL(L)
(NMI)
RESET
OSC2
OSC1
VSS
X1
X2
TEST
AVSS
AVGFM
FM DETS
P DOWN
S.CURVE
A.LVLR
PROTECT
A.LVLL/SECAM DET
STL(L)
CAP V
DRUM V
JSB
JSA
AVCC
D.FF
DUTY I/O
CAP FG
PWM
CPLS
PCTL
R.PAUSE
LSA
LSB
REC SF
END.S
VPCTL
CAP REV
MES DET
CCIR(L)
NTSC(L)
RC IN
V.MUTE(H)
B/W.LPSPCL(H)
V.SYNC
EXV DATA
LCM1
LCM2
S-OUT
S-IN
S-CLK
SERVO DATA
FDATA
SERVO CLK
VCC
STB
D605
PAUSE(L)
NC
CAP.V CTL
DRUM CTL.V
DUTY I/O
CTL.CLOCK
CTL C/D
CFG C/D
DFF
S.CLK
S.DATA
CAP FG
VP CTL
SW 5V
GND(C)
GND(M)
M13V
TO SERVO (Page 4-20)
CN4
IC201
CAT35C102P
DO
DI
CLK
MCE
VSS
ORG
NC
VCC
C201 0.01

4.11 TERMINAL SCHEMATIC DIAGRAM


5
4
3
2
1
A
B
C
D
TO VIDEO (Page 4-17)
VIDEO_GND 118
VIDEO_OUT 116
VIDEO_IN 117
RF_VIDEO_IN 119
To AUDIO (Page 4-15)
AUDIO-OUT(L) 120
AUDIO_GND 121
AUDIO-IN (L) 122
RF_AUDIO_IN 123
AUDIO-OUT(R) 124
AUDIO_GND 125
AUDIO-IN(R) 126
TO SYSCON (Page 4-21)
REMOTE_PAUSE 110
VIDEO(L) 81
TO REGULATOR (Page 4-12)
SW 5V 6
AL 5V 24
R701 75
J703 VIDEO IN OUT
J704 AUDIO(L) IN OUT
J705 AUDIO(R) IN OUT
J702 REMOTE PAUSE
D701
D702
D703
D704
D706
D707
R68 100K
R70 220
R69 100K
R71 220
R704 1K
R703 39K
C703 47/16
Q702 2SB810(L-T)
L702 10μ
L701 10μ
B861
B862
TO TUNER FRONT END
RF IN
RF OUT
RF VIDEO IN
GND
RF AUDIO IN
SW 5V
AL 5V
0
0
0
5.1
4.9
RF1 RF CONVERTER
03 MAIN (TERMINAL)

MAIN COMPONENT PARTS LOCATION GUIDE <MAIN PWB>

REF. No.	LOCATION
IC	
IC1	9J
IC201	22G
IC202	21D
IC203	20K
IC204	17G
IC401	15C
IC441	11B
IC601	7E
IC602	5F
TRANSISTOR	
Q1	8M
Q2	7K
Q3	10N
Q4	7K
Q5	7K
Q7	8J
Q201	21D
Q202	21E
Q205	21L
Q207	19C
Q208	19D
Q209	19J
Q210	19J
Q211	19L
Q212	19F
Q213	19F
Q218	19E
Q441	12C
Q601	6F
Q602	8E
Q603	4C
Q604	4B
Q606	4H
Q607	5D
Q608	5G
Q801	2B
Q802	2C
Q803	3D
Q804	2E
DIODE	
D3	2I
D201	19E
D204	19I
D205	18G
D207	16L
D401	14B
D402	13B
D403	16E
D601	7G
D602	7G
D603	3G
D604	4G
D605	3G
D606	6G
D701	10P
D702	10P
D703	10P
D704	10O
D706	10P
D707	10P
D801	1C
D802	2E
D803	2A
D811	2H
D812	1F
D813	3A
CONNECTOR	
CN1	10L
CN2	11M
CN3	5K
CN4	3M
CN5	2N
CN6	5O
CN7	8O
CN8	11N
CN9	11O
CN201	17L
CN401	19A
CN402	20A
CN601	1G
CN602	2A

REF. No.	LOCATION
CONNECTOR	
CN603	2O
CN604	12P
CN605	12O
CN606	20L
CN607	21M
CN802	1D
CN803	1B
ADJUSTMENT	
L202	21H
C614	6F
TEST POINT	
TP33	9K
TP53	2M
TP212	22B
TP244	21G
TP401	18A
TP411	18B
TPGND1	18I
TPGND3	4K
CP	
CP401	19A
CP801	3C

LEADLESS COMPONENT PARTS LOCATION GUIDE <MAIN PWB>

• AUDIO

REF. No.	LOCATION
TRANSISTOR	
Q1	8M
Q3	10N
Q6	10I
Q7	8J
Q8	8I
Q9	8J
Q10	7J
Q13	2K
Q15	3K
Q16	11M
RESISTOR	
R1	10K
R2	9L
R3	9L
R4	9M
R5	8M
R6	8M
R7	8K
R8	7K
R9	10N
R10	9N
R11	7K
R12	7K
R13	7K
R14	6J
R15	4K
R16	10K
R17	9K
R18	9K
R19	9K
R20	9J
R21	9K
R22	9K
R23	9K
R24	9K
R25	8K
R26	8K
R27	8J
R29	10I
R30	9J
R31	9I
R32	9J
R33	9J
R34	9J
R35	10J
R36	8I
R37	8J
R38	8J
R39	8J
R40	10J
R41	8J
R42	8I
R43	9I
R44	7I
R45	7I
R46	8M
R47	8M
R48	2K
R49	3J
R50	7M
R51	7M
R52	7M
R53	7L
R54	6N
R55	6N
R56	6M
R57	6N
R58	3M
R59	3M
R60	3M
R61	3M
R62	3M
R63	3M
R64	2J
R65	3J
R66	8P
R67	7P
R68	9P
R69	8P
R70	9P
R71	8O
R72	10I
R73	9L

REF. No.	LOCATION
RESISTOR	
R74	7K
R75	10M
R76	11M
R77	2K
R78	3K
CAPACITOR	
C1	9L
C4	9M
C5	9M
C8	10N
C9	9N
C11	10J
C13	9J
C14	9K
C20	10J
C28	8M
C35	2L

• VIDEO

REF. No.	LOCATION
TRANSISTOR	
Q201	21D
Q202	21E
Q205	21L
Q206	20K
Q207	19C
Q208	19D
Q212	19F
Q213	19F
Q214	19G
Q215	21J
Q216	21I
Q217	19G
Q218	19E
RESISTOR	
R201	20C
R202	20C
R203	20C
R204	21F
R205	21F
R206	21F
R207	20F
R208	22H
R209	21H
R210	21D
R211	21D
R212	21C
R213	21C
R214	21E
R215	21E
R216	21E
R217	20C
R220	22M
R221	21J
R222	21J
R223	20K
R224	21K
R225	21K
R226	22L
R227	21L
R228	21K
R229	21K
R230	21K
R231	21K
R232	21L
R233	21L
R234	19D
R235	19C
R236	19C
R237	19C
R238	19C
R239	19D
R240	11N
R243	19J
R245	19K
R246	18L
R247	18L
R249	19F
R250	19F

REF. No.	LOCATION
RESISTOR	
R251	19F
R252	19G
R253	19G
R254	19G
R255	21J
R256	21J
R257	20I
R258	21I
R259	21I
R260	19H
R261	16L
R262	19D
R263	19E
R264	21B
R265	19F
R267	20C
CAPACITOR	
C203	21F
C204	21F
C205	21F
C206	21F
C207	20F
C209	22H
C210	21G
C212	21G
C214	21G
C216	21C
C217	20D
C218	21J
C219	21J
C220	21K
C221	21K
C222	21J
C223	21J
C224	20J
C225	22K
C228	21K
C229	21L
C230	20K
C231	20K
C232	20K
C233	20L
C239	18K
C242	19F
C243	19G
C244	19G
C246	19F
C247	21J
C249	20I
C250	19H
C252	15L
C254	16G
C255	19J
C257	21E
C258	21E
C260	20C
C261	20C
C263	19C
C264	19C
C265	19D

• SERVO

REF. No.	LOCATION
RESISTOR	
R401	16B
R402	16A
R403	16B
R404	15B
R405	16B
R406	15B
R407	15B
R409	14C
R410	16D
R411	16D
R412	16D
R414	16D
R415	16D
R416	16D
R417	15D
R418	15C

REF. No.	LOCATION
RESISTOR	
R419	15C
R421	14D
R422	14C
R423	14C
R424	14D
R429	14C
R430	14D
R431	14D
R433	13D
R434	14D
R435	14C
R438	13D
R441	11C
R442	12C
R443	12B
R451	11D
R452	11D
R453	12D
R454	12D
R455	12D
R456	12C
CAPACITOR	
C401	17B
C404	16B
C405	16B
C407	15A
C409	14B
C410	14C
C414	17D
C421	14D
C442	11C
C443	11C
C444	12B
C445	12C
C446	13B
C449	12B
C453	11D
C455	11D

• SYSCON

REF. No.	LOCATION
IC	
IC601	6D
TRANSISTOR	
Q601	6F
Q602	8E
Q603	4C
Q604	4B
Q605	4C
Q606	4H
Q607	5D
Q608	5G
Q609	13M
Q610	14M
Q611	14M
Q612	14M
RESISTOR	
R601	7F
R602	6E
R603	6F
R604	6F
R605	6F
R606	6F
R607	6E
R608	5F
R609	5F
R610	5F
R611	5E
R612	5E
R613	5E
R614	5E
R615	5E
R616	5E
R617	5D
R618	5D
R619	5D
R620	5D

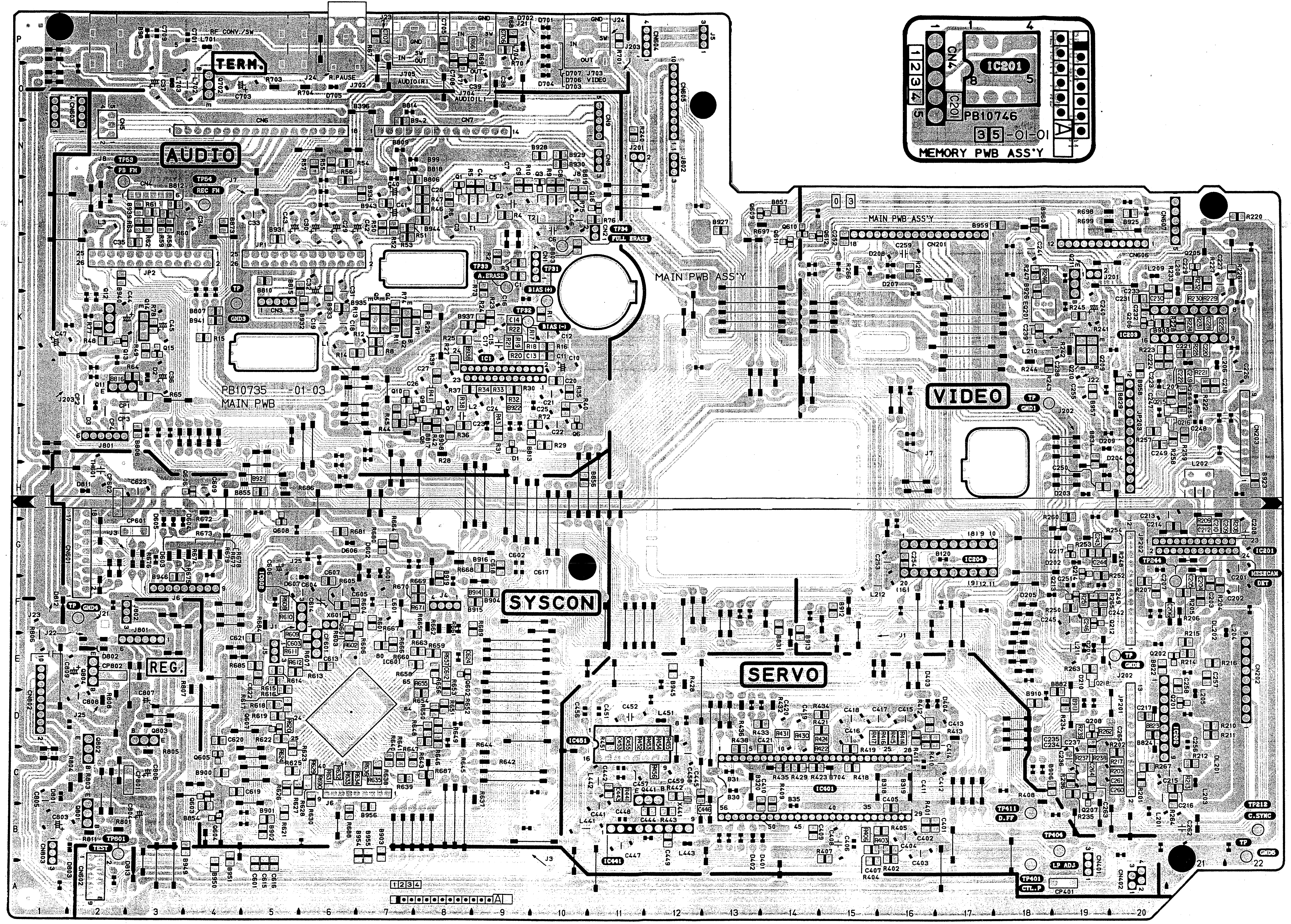
REF. No.	LOCATION
RESISTOR	
R621	5B
R622	5D
R623	5C
R624	5C
R625	5C
R626	5C
R627	5C
R628	6C
R629	6C
R630	6C
R631	6C
R632	6C
R633	6C
R634	6C
R635	7C
R636	7C
R638	7C
R639	7C
R640	7C
R641	7C
R643	7C
R646	8D
R647	8D
R648	8D
R649	8D
R650	8D
R651	8D
R652	8D
R653	8E
R654	8E
R655	8E
R656	8E
R657	8E
R658	8E
R659	8E
R660	8E
R663	8E
R664	7G
R666	7E
R667	7E
R668	9G
R669	7F
R670	7F
R671	7F
R680	7G
R681	6G
R685	5E
R687	8C
R688	6B
R689	8F
R690	6C
CAPACITOR	
C601	5A
C603	5E
C607	6F
C612	8E
C613	6E
C615	5A
C616	5A
C618	9G
C619	4C
C620	4D
C621	5E
C622	5E
C624	8E

• TERMINAL

REF. No.	LOCATION
RESISTOR	
R701	11P
CAPACITOR	
C705	8P
C706	9P
C707	7P
C708	8P

4.12 MAIN & MEMORY CIRCUIT BOARDS

—MAIN—

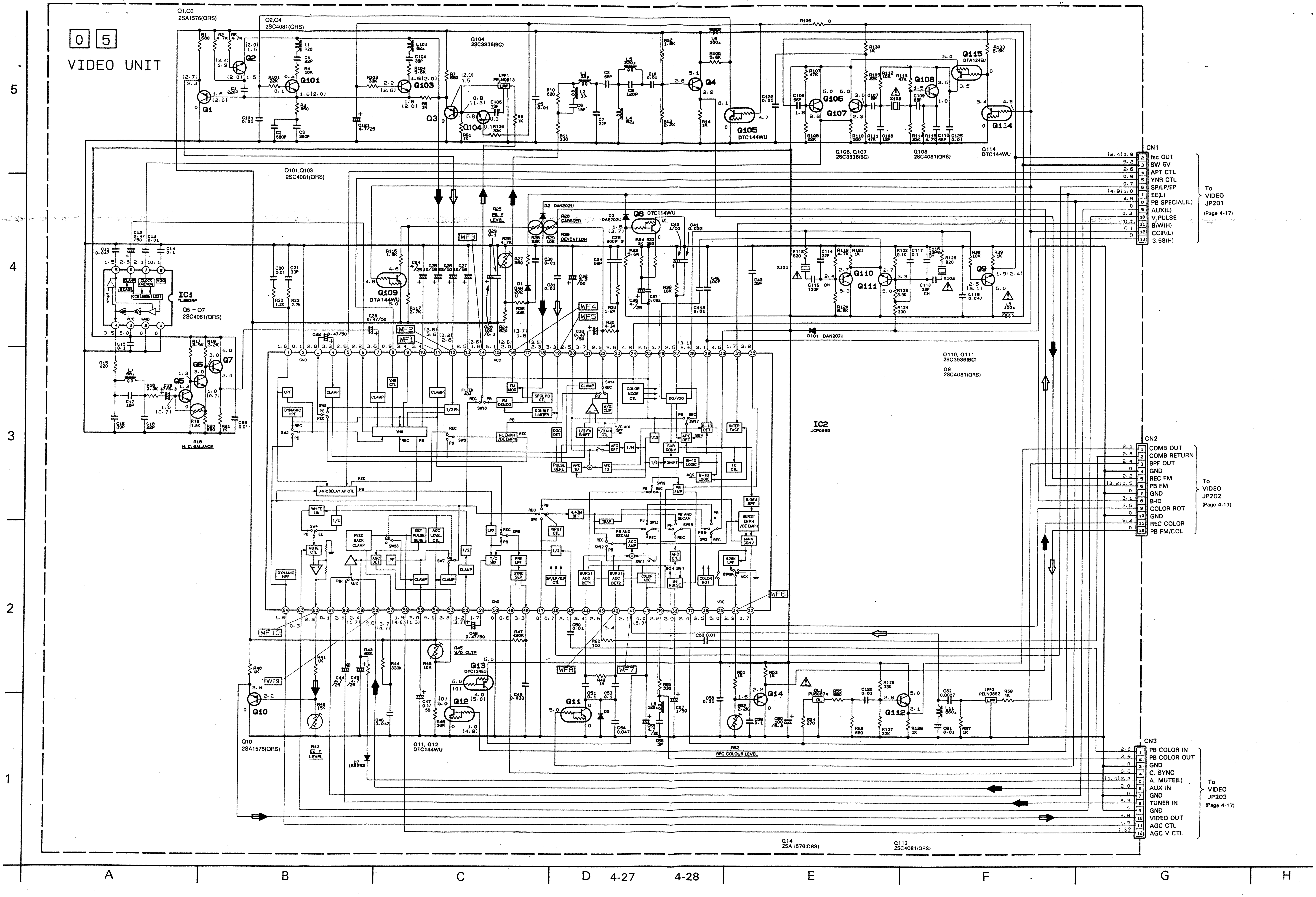


TERM.
AUDIO
VIDEO
SYSCON
REG.
SERVO
MAIN PWB ASS'Y
PB10735 -01-03
MAIN PWB

—MEMORY—

CN4
IC201
C201
PB10746
3 5 -01-01
A
MEMORY PWB ASS'Y

4.13 VIDEO UNIT SCHEMATIC DIAGRAM


0 5
VIDEO UNIT
Q1,Q3 2SA1576(QRS)
Q2,Q4 2SC4081(QRS)
Q104 2SC3936(BC)
Q101,Q103 2SC4081(QRS)
Q105 DTC144WU
Q106, Q107 2SC3936(BC)
Q108 2SC4081(QRS)
Q114 DTC144WU
Q115 DTA124EU
LPF1 PELN0913
IC1 TL6839P
Q5 ~ Q7 2SC4081(QRS)
R18 N-C BALANCE
Q109 DTA144WU
Q8 DTC114WU
D2 DAN202U
D3 DAP202U
D1 DAN202U
R25 PB Y LEVEL
R28 CARRIER
R29 DEVIATION
D101 DAN202U
Q110, Q111 2SC3936(BC)
Q9 2SC4081(QRS)
IC2 JCP0035
WF1
WF2
WF3
WF4
WF5
WF6
WF7
WF8
WF9
WF10
R45 W/D CLIP
Q13 DTC124EU
Q11, Q12 DTC144WU
Q10 2SA1576(QRS)
R42 EE Y LEVEL
D7 1SS292
DL PU5087A
LPF2 PELN0892
R52 REC COLOUR LEVEL
Q14 2SA1576(QRS)
Q112 2SC4081(QRS)
CN1
(2.4)1.9 2 fsc OUT
5.2 3 SW 5V
2.6 4 APT CTL
0.9 5 YNR CTL
0.7 6 SP/LP/EP
(4.9)1.0 7 EE(L)
4.9 8 PB SPECIAL(L)
0 9 AUX(L)
0.3 10 V PULSE
0.4 11 B/W(H)
0.1 12 CCIR(L)
0 13 3.58(H)
To VIDEO JP201 (Page 4-17)
CN2
2.1 1 COMB OUT
2.3 2 COMB RETURN
2.4 3 BPF OUT
0 4 GND
2.2 5 REC FM
(3.2)0.5 6 PB FM
0 7 GND
3.1 8 B-ID
2.5 9 COLOR ROT
0 10 GND
2.2 11 REC COLOR
0 12 PB FM/COL
To VIDEO JP202 (Page 4-17)
CN3
2.8 1 PB COLOR IN
2.8 2 PB COLOR OUT
0 3 GND
0.6 4 C. SYNC
(1.4)2.2 5 A. MUTE(L)
2.0 6 AUX IN
0 7 GND
8.3 8 TUNER IN
0 9 GND
2.8 10 VIDEO OUT
1.9 11 AGC CTL
1.82 12 AGC V CTL
To VIDEO JP203 (Page 4-17)
1
2
3
4
5
A
B
C
D
E
F
G
H

4.14 VIDEO UNIT CIRCUIT BOARD

MAIN COMPONENT PARTS LOCATION GUIDE

<VIDEO UNIT BOARD>

REF. No.	LOCATION
IC	
IC1	9C
IC2	3B

REF. No.	LOCATION
TRANSISTOR	
Q1	2C
Q2	2D
Q3	1D
Q4	6D
Q5	8D
Q6	9D
Q7	8C
Q8	7D
Q9	5C
Q10	2B
Q11	4A
Q12	4B
Q13	5B
Q14	5A
Q101	2C
Q102	3D
Q103	1C

REF. No.	LOCATION
TRANSISTOR	
Q104	1D
Q105	3D
Q106	6C
Q107	6C
Q108	8C
Q109	3C
Q110	5C
Q111	5D
Q112	6A
Q114	9B
Q115	8C

REF. No.	LOCATION
DIODE	
D1	3B
D2	4D
D3	8D
D5	4A
D7	3A
D101	6C

REF. No.	LOCATION
CONNECTTOR	
CN1	8A
CN2	5A
CN3	2A

REF. No.	LOCATION
ADJUSTMENT	
R18	8D
R25	3B
R28	4C
R29	4C
R42	1B
R45	3B
R52	5A

LEADLESS COMPONENT PARTS LOCATION GUIDE

<VIDEO UNIT BOARD>

REF. No.	LOCATION
TRANSISTOR	
Q1	2C
Q2	2D
Q3	1D
D4	6D
Q5	8D
Q6	9D
Q7	8C
Q8	7D
Q9	5C
Q10	2B
Q11	4A
Q12	4B
Q13	5B
Q14	5A
Q101	2C
Q102	3D
Q103	1C
Q104	1D
Q105	3D
Q106	6C
Q107	6C
Q108	8C
Q109	3C
Q110	5C

REF. No.	LOCATION
TRANSISTOR	
Q111	5D
Q112	6A
Q114	9B
Q115	8C

REF. No.	LOCATION
DIODE	
D1	3B
D2	4D
D3	8D
D6	3B
D101	6C

REF. No.	LOCATION
RESISTOR	
R1	2D
R2	2D
R3	2C
R4	2D

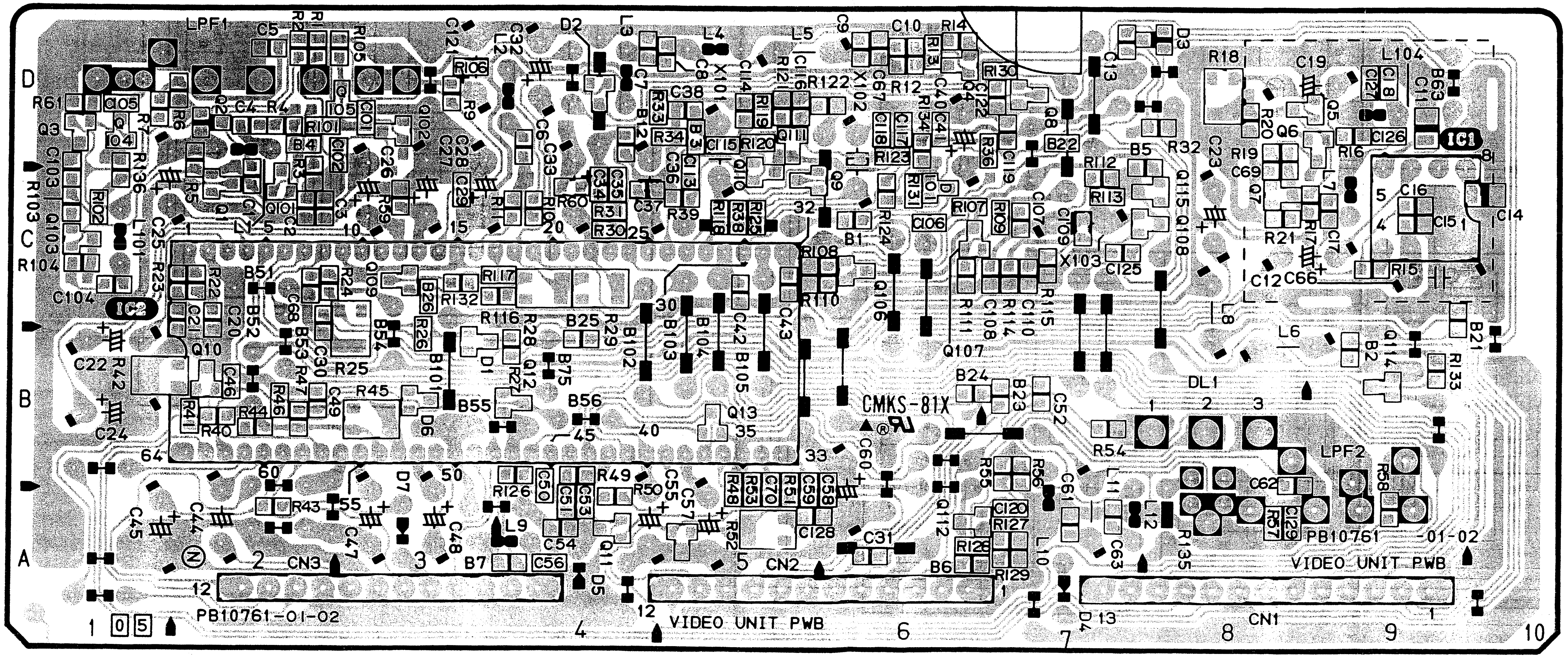
REF. No.	LOCATION
RESISTOR	
R5	2D
R6	2D
R7	1D
R9	3D
R10	4C
R11	4C
R12	6D
R13	6D
R14	6D
R15	9C
R16	9D
R17	9B
R18	8D
R19	8D
R20	8D
R21	8C
R22	2C
R23	2C
R24	2B
R25	3B
R26	3B
R27	4B
R28	4C
R29	4C

REF. No.	LOCATION
RESISTOR	
R30	4C
R31	4C
R32	8D
R33	4C
E34	5C
R36	7D
R38	5C
R39	5C
R40	2B
R41	2B
R42	1B
R43	2A
R44	2B
R45	3B
R46	2B
R47	2B
R48	5A
R49	4A
R50	4A
R51	5A
R52	5A
R53	5A
R54	7B
R55	7B

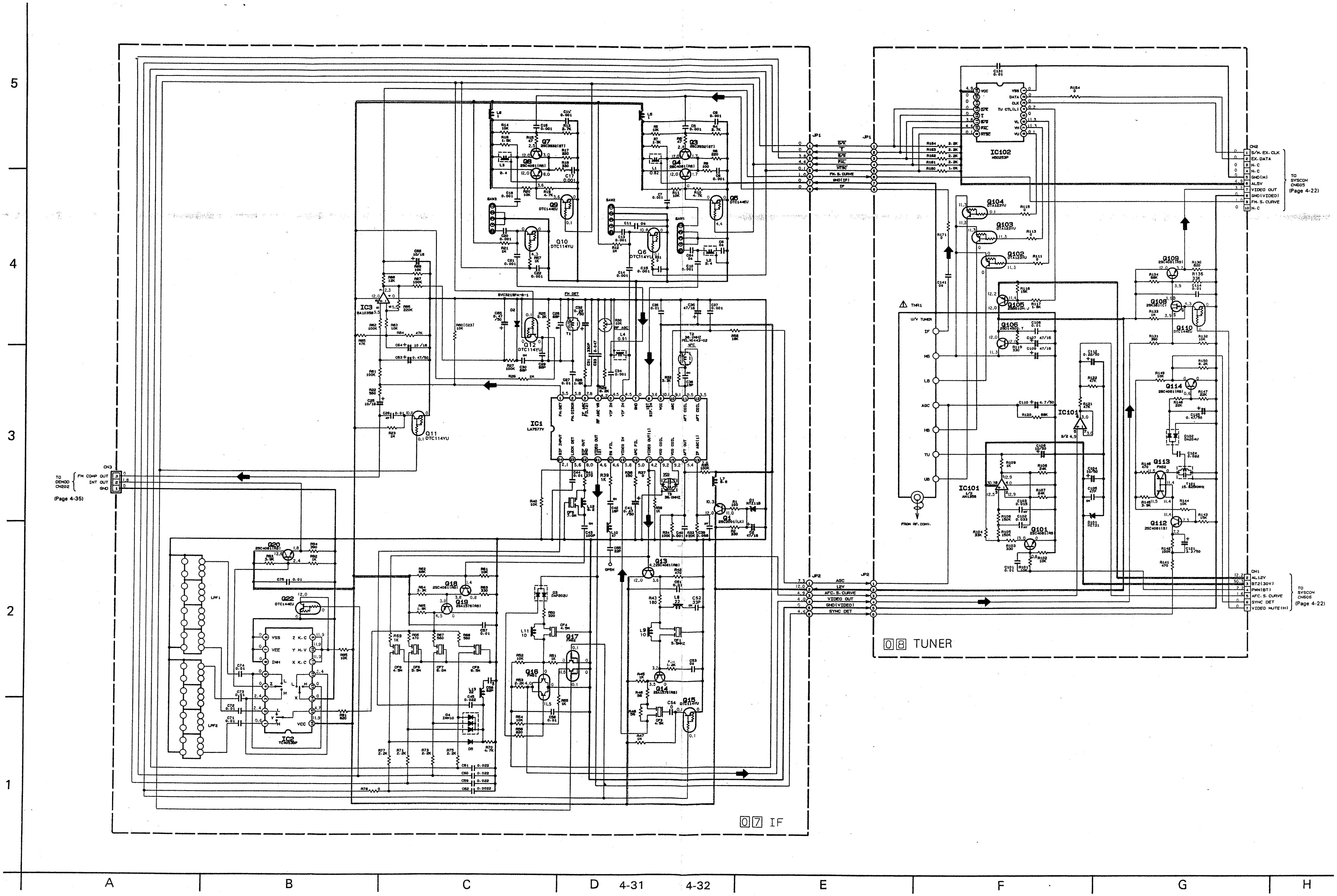
REF. No.	LOCATION
RESISTOR	
R56	7B
R57	8A
R58	9A
R59	3C
R60	4C
R61	1D
R101	2D
R103	1C
R104	1C
R105	2D
R106	3D
R107	6B
R108	5C
R109	7B
R110	5C
R111	6C
R112	7C
R113	7C
R114	7C
R115	7C
R116	4C
R117	4C
R118	5C
R119	5D
R120	5D
R121	5D
R122	6D
R123	6D
R124	6C
R125	5C
R126	4A
R127	7A
R128	6A
R129	7A
R130	7D
R131	6C
R132	3C
R133	9B
R134	6D
R136	1C

REF. No.	LOCATION
CAPACITOR	
C1	2C
C2	2C
C3	2C
C4	2D
C5	2D
C6	4D
C7	4D
C8	5D
C9	6D
C10	6D
C11	9D
C13	7D
C14	10C
C15	9C
C16	9C
C17	9C
C18	9D
C20	2C
C21	2C
C29	3C
C30	2B

REF. No.	LOCATION
CAPACITOR	
C31	6A
C34	4C
C35	4C
C37	4C
C38	5D
C41	6D
C42	5C
C43	5C
C46	2B
C49	2B
C49	2B
C50	4A
C51	4A
C52	7B
C53	4A
C54	4A
C56	4A
C58	6A
C59	5A
C61	7A
C62	8B
C63	7A
C67	6D
C68	2C
C69	8C
C70	5A
C101	3D
C102	2D
C103	1D
C104	1C
C105	1D
C106	6C
C107	7C
C108	7C
C109	7C
C110	7C
C113	5C
C114	5D
C115	5D
C116	5D
C117	6D
C118	6D
C119	7D
C120	7A
C122	7D
C125	7C
C126	9D
C127	9D
C128	5A
C129	8A



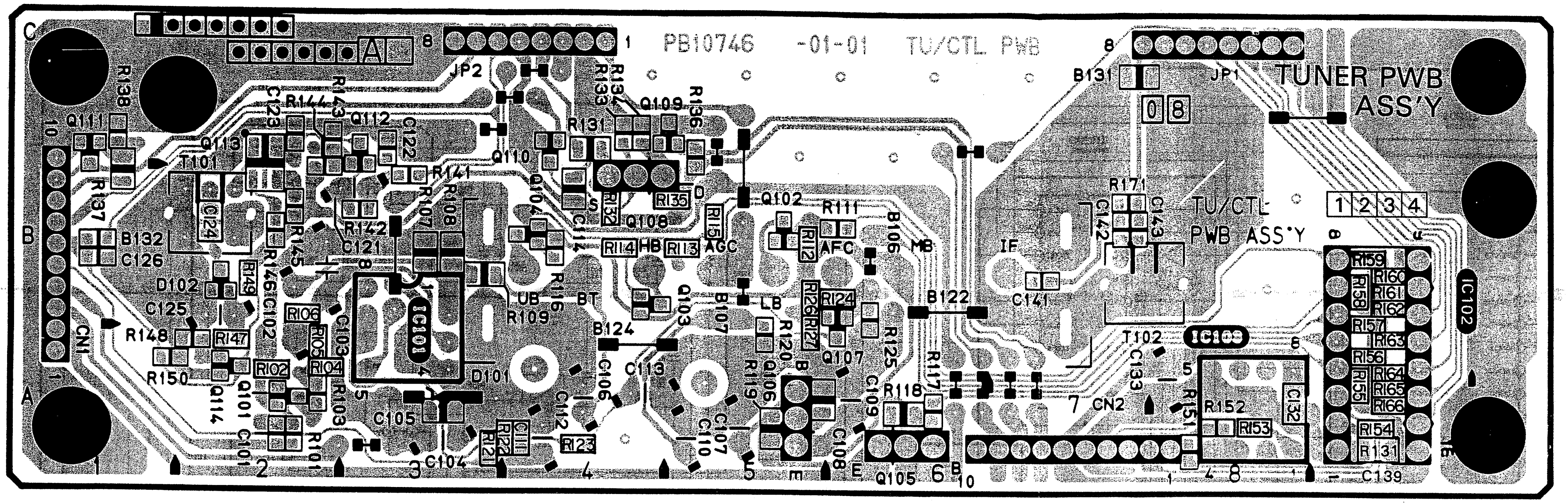
4.15 TUNER & IF SCHEMATIC DIAGRAMS



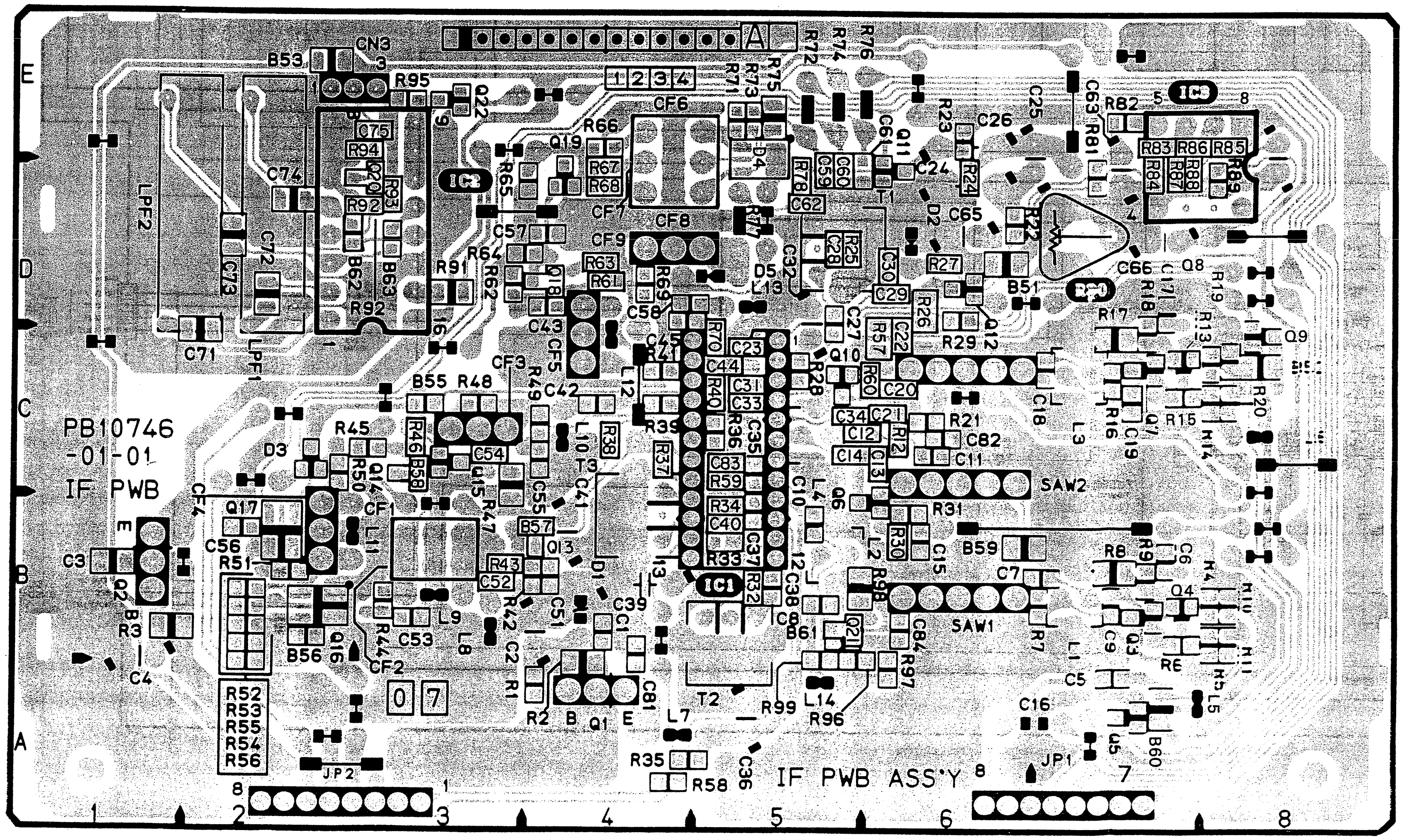
07 IF
08 TUNER
IC1 LA7577V
IC2 TC4053BP
IC3 BA10358
IC101 1/2 AN1358
IC102 M50253P
TNR1 U/V TUNER
FROM RF CONV.
TO DEMOD CN202 (Page 4-35)
CN3
FM COMP OUT
INT OUT
GND
JP1
JP2
D/K
I
B/G
PAL
NTSC
FM.S. CURVE
GND(IF)
IF
AGC
12V
AFC S. CURVE
VIDEO OUT
GND(VIDEO)
SYNC DET
CN2
S/H. EX. CLK
EX. DATA
N.C
N.C
GND(H)
AL5V
VIDEO OUT
GND(VIDEO)
FM. S. CURVE
N.C
TO SYSCON CN605 (Page 4-22)
CN1
AL12V
BT2(30V)
PWM(BT)
AFC. S. CURVE
SYNC DET
VIDEO MUTE(H)
TO SYSCON CN606 (Page 4-22)
SAW1
SAW2
SAW3
LPF1
LPF2
FM DET
SVC321SPA-B-1
OPEN
A
B
C
D
E
F
G
H
1
2
3
4
5

4.16 TUNER & IF CIRCUIT BOARDS

—TUNER—


PB10746 -01-01 TU/CTL PWB
TUNER PWB ASS'Y
TU/CTL PWB ASS'Y
IC101
IC102
IC103
CN1
CN2
JP1
JP2
Q101
Q102
Q103
Q104
Q105
Q106
Q107
Q108
Q109
Q110
Q111
Q112
Q113
Q114
D101
D102
T101
T102
B122
B124
B131
B132
UB
BT
LB
HB
MB
AGC
AFC
IF
A
B
C
1
2
3
4
5
6
7
8
9
10

—IF—


PB10746 -01-01 IF PWB
IF PWB ASS'Y
IC1
IC2
IC3
CN3
JP1
JP2
SAW1
SAW2
LPF1
LPF2
CF1
CF2
CF3
CF5
CF6
CF7
CF8
CF9
T1
T2
T3
A
B
C
D
E
1
2
3
4
5
6
7
8

MAIN COMPONENT PARTS LOCATION GUIDE
<TUNER CTL PWB>

REF. No.	LOCATION
IC	
IC101	3A
IC102	9B
TRANSISTOR	
Q101	2A
Q102	5B
Q103	5B
Q104	4B
Q105	6A
Q106	5A
Q108	4B
Q109	5C
Q110	4C
Q112	3C
Q113	2C
Q114	2A
DIODE	
D101	3A
D102	2B
CONNECTOR	
CN1	1A
CN2	7A

LEADLESS COMPONENT PARTS LOCATION GUIDE
<TUNER CTL PWB>

REF. No.	LOCATION
TRANSISTOR	
Q101	2A
Q102	5B
Q103	4B
Q104	4B
Q107	6A
Q109	5C
Q110	4C
Q111	1C
Q112	3C
Q114	2A
DIODE	
D102	2B
RESISTOR	
R101	2A
R102	2A
R103	2A
R104	2A
R105	2A
R106	2B
R107	3B
R108	3B
R109	3B
R111	6B
R112	5B
R113	5B
R114	4B
R115	5B
R116	4B
R117	6A
R118	6A
R119	5B
R120	5B
R121	3A
R122	4A
R123	4A
R124	6B
R125	6B

REF. No.	LOCATION
RESISTOR	
R126	5B
R127	5B
R131	4C
R132	4B
R133	4C
R134	4C
R135	5B
R136	5C
R137	1B
R138	1C
R141	3B
R142	3B
R143	2C
R144	2C
R145	2B
R146	2B
R147	2A
R148	2A
R149	2B
R150	1A
R151	8A
R152	8A
R153	8A
R154	9A
R155	9A
R156	9A
R157	9B
R158	9B
R159	9B
R160	9B
R161	9B
R162	9B
R163	9A
R164	9A
R165	9A
R166	9A
R171	7B

REF. No.	LOCATION
CAPACITOR	
C101	2A
C105	3A
C108	6E
C111	4A
C114	4B
C122	3C
C123	2C
C124	2B
C126	1B
C131	9A
C132	8A
C141	7B
C142	7B
C143	7B

MAIN COMPONENT PARTS LOCATION GUIDE
<IF PWB>

REF. No.	LOCATION
IC	
IC1	5B
IC2	3D
IC3	7E
TRANSISTOR	
Q1	4A
Q3	7B
Q4	7B
Q5	7A
Q6	6B
Q7	7C
Q8	7C
Q9	8C
Q10	5C
Q11	6E
Q12	6D
Q13	4B
Q14	3B
Q15	3C
Q16	2B
Q17	2B
Q18	4D
Q19	4E
Q20	3D
Q22	3E
DIODE	
D1	4B
D2	6D
D3	2C
D4	5E
D5	5D
CONNECTOR	
JP1	7A
JP2	2A
ADJUSTMENT	
R30	7D
T1	6D
T2	5A
T3	4C

LEADLESS COMPONENT PARTS LOCATION GUIDE <IF PWB>

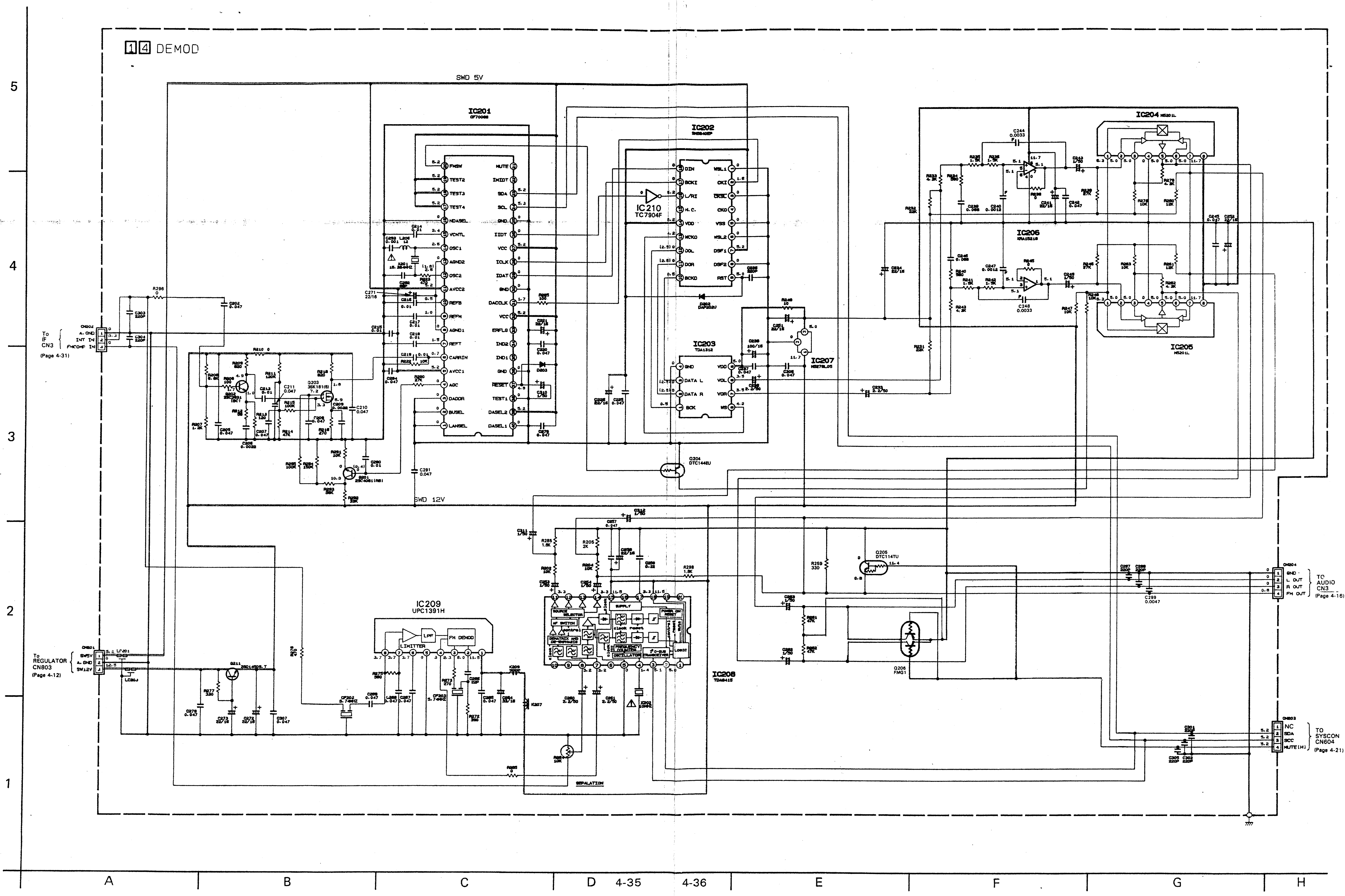
REF. No.	LOCATION
TRANSISTOR	
Q3	7B
Q4	7B
Q5	7A
Q6	6B
Q7	7C
Q8	7C
Q9	8C
Q10	5C
Q11	6E
Q12	6D
Q13	4B
Q14	3B
Q15	3C
Q16	2B
Q17	2B
Q18	4D
Q19	4E
Q20	3D
Q21	5B
Q22	3E
DIODE	
D3	2C
D4	5E
RESISTOR	
R1	4A
R2	4A
R3	1B
R4	8B
R5	8B
R6	7B
R7	7B
R8	7B
R9	7B
R10	8B
R11	8B
R12	6C
R13	7C
R14	8C
R15	7C
R16	7C
R17	7D
R18	7D

REF. No.	LOCATION
RESISTOR	
R19	8C
R20	8C
R21	6C
R22	6D
R23	6E
R24	6D
R25	5D
R26	6D
R27	6D
R28	5C
R29	6D
R30	6B
R31	6B
R32	5B
R33	5B
R34	5B
R35	4A
R36	5C
R37	4C
R38	4C
R39	4C
R40	5C
R41	4C
R42	4B
R43	3B
R44	3B
R45	3C
R46	3C
R47	3B
R48	3C
R49	4C
R50	2C
R51	2B
R52	2B
R53	2B
R54	2B
R55	2B
R56	2B
R57	6C
R58	5A
R59	5C
R60	6C
R61	4D
R62	4D
R63	4D

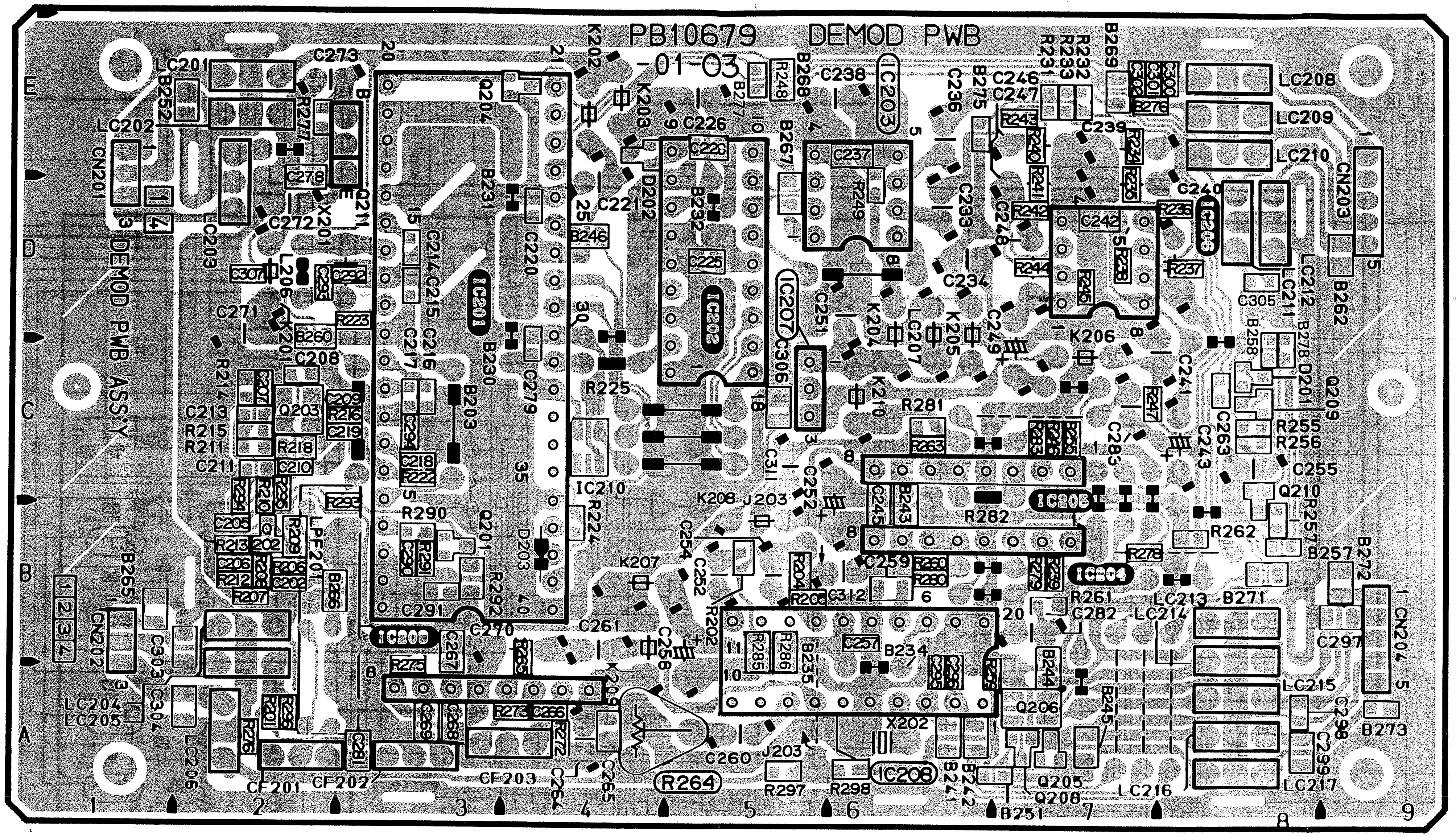
REF. No.	LOCATION
RESISTOR	
R64	3D
R65	3D
R66	4E
R67	4D
R68	4D
R69	4D
R70	5C
R71	5E
R73	5E
R75	5E
R78	5E
R81	7E
R82	7E
R83	7E
R84	7E
R85	8E
R86	8E
R87	7E
R88	7E
R89	8D
R91	3D
R92	3D
R93	3D
R94	3E
R95	3E
R96	5B
R97	6A
R98	6B
R99	5B
CAPACITOR	
C1	4B
C3	1B
C5	7A
C6	7B
C8	5B
C9	7B
C10	5B
C11	6C
C12	5C
C13	6C
C14	5C
C15	6B

REF. No.	LOCATION
CAPACITOR	
C18	7C
C20	6C
C21	6C
C22	6C
C23	5C
C27	5D
C28	5D
C29	6D
C30	6D
C31	5C
C33	5C
C34	5C
C35	4C
C37	5B
C38	5B
C40	5B
C42	4C
C43	4D
C44	5C
C45	4D
C51	4B
C52	3B
C53	3B
C54	3C
C55	4C
C56	2B
C57	4D
C58	4D
C59	5D
C60	5D
C61	5D
C62	5D
C71	2C
C72	2D
C73	2D
C74	2D
C75	3E
C81	4A
C82	6C
C83	5C
C84	6B

4.17 DEMOD SCHEMATIC DIAGRAM


14 DEMOD
SWD 5V
SWD 12V
IC201
CF70088
IC202
IC203
TDA1312
IC204
IC205
IC206
IC207
IC208
IC209
UPC1391H
IC210
TC7904F
Q204
DTC144EU
Q205
DTC114TU
Q206
LIMITTER
LPF
FM DEMOD
SEPALATION
To IF CN3
(Page 4-31)
To REGULATOR CN803
(Page 4-12)
TO AUDIO CN3
(Page 4-16)
TO SYSCON CN604
(Page 4-21)
CN202
CN201
CN204
CN203
GND
L OUT
R OUT
FM OUT
NC
SDA
SCC
MUTE(H)
SW5V
A.GND
SW12V
INT IN
A.GND
F+C+FC IN
1
2
3
4
5
A
B
C
D
E
F
G
H

4.18 DEMOD CIRCUIT BOARD


PB10679 DEMOD PWB
-01-03
DEMOD PWB ASSY
E
D
C
B
A
1
2
3
4
5
6
7
8
9
CN201
CN202
CN203
CN204
IC201
IC202
IC203
IC204
IC205
IC206
IC207
IC208
IC209
IC210
Q201
Q203
Q204
Q205
Q206
Q208
Q209
Q210
Q211
D201
D202
D203
LC201
LC202
LC203
LC204
LC205
LC206
LC207
LC208
LC209
LC210
LC211
LC212
LC213
LC214
LC215
LC216
LC217
CF201
CF202
CF203
X201
X202
K202
K203
K204
K205
K206
K207
K208
K209
K210
J203
R264
L206
LPF201

MAIN COMPONENT PARTS LOCATION GUIDE <DEMOD BOARD>

REF No.	LOCATION
IC	
IC201	3D
IC202	5D
IC203	6D
IC204	6A
IC205	7B
IC206	7D
IC207	5C
IC208	6A
IC209	3A
IC210	4C
TRANSISTOR	
Q201	3B
Q202	2B
Q203	2C
Q204	4E
Q205	7A
Q206	7A
Q208	7A
Q209	8C
Q210	8C
Q211	3E
DIODE	
D201	8C
D202	4E
D203	4B
CONNECTOR	
CN201	1E
CN202	1B
CN203	9D
CN204	9B
ADJUSTMENT	
R264	4A

LEADLESS COMPONENT PARTS LOCATION GUIDE <DEMOD BOARD>

REF No.	LOCATION
RESISTOR	
R201	2A
R202	5B
R204	5B
R205	5B
R206	2B
R207	2B
R208	2B
R209	2B
R210	2B
R211	2C
R212	2B
R213	2B
R214	2C
R215	2C
R216	2C
R218	2C
R222	3C
R223	2D
R224	4B
R231	7E

REF No.	LOCATION
RESISTOR	
R232	7E
R233	7E
R234	7E
R235	7D
R236	8D
R237	7D
R238	7D
R239	7B
R240	7E
R241	7D
R242	7D
R243	7E
R245	7D
R246	7C
R247	7C
R248	5E
R249	6D
R255	8C
R256	8C
R257	8B

REF No.	LOCATION
RESISTOR	
R259	6A
R260	6B
R261	7B
R262	8B
R265	4B
R272	4A
R273	4A
R275	3A
R276	2A
R277	2E
R278	7B
R279	7B
R280	6B
R281	6C
R283	7C
R285	5B
R286	5B
R290	3B
R291	3B
R292	3B

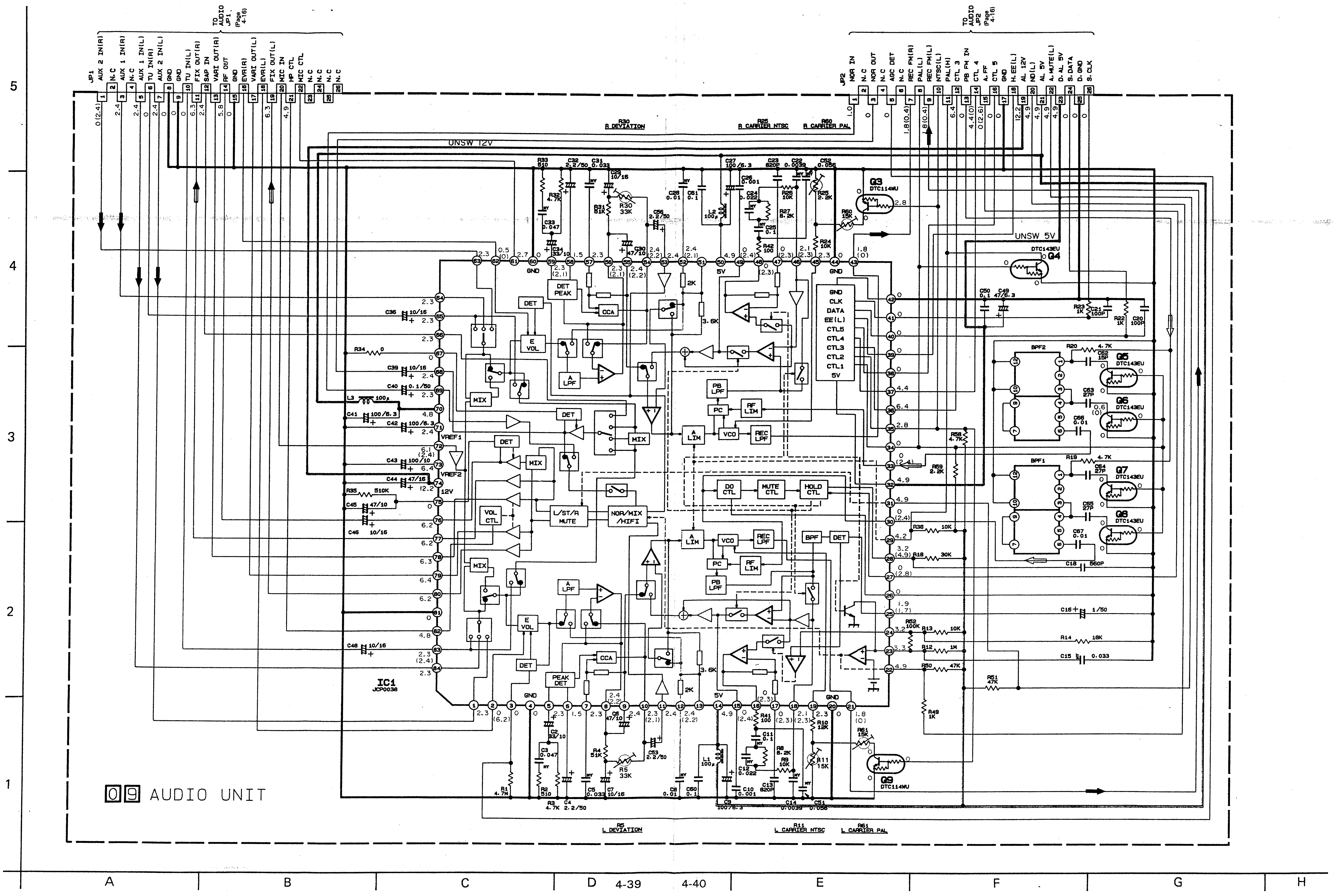
REF No.	LOCATION
RESISTOR	
R293	2C
R294	2B
R295	2B
R296	2A
R297	5A
R298	6A
CAPACITOR	
C202	2B
C205	2B
C206	2B
C207	2C
C208	2C
C209	2C
C210	2C
C211	2C
C213	2C
C214	3D
C215	3D
C216	3C

REF No.	LOCATION
CAPACITOR	
C217	3C
C218	3C
C219	2C
C220	4D
C225	5D
C228	5E
C237	6E
C242	7D
C245	6C
C257	6B
C259	6B
C263	8C
C265	4A
C266	4A
C267	3B
C268	3A
C269	3A
C278	2D
C279	4C
C281	3A

REF No.	LOCATION
CAPACITOR	
C290	3B
C291	3B
C292	2D
C293	2D
C294	3C
C295	6A
C296	6A
C297	9B
C298	8A
C299	8A
C300	8E
C301	7E
C302	7E
C303	2B
C304	2A
C305	8D
C306	5C
C307	2D

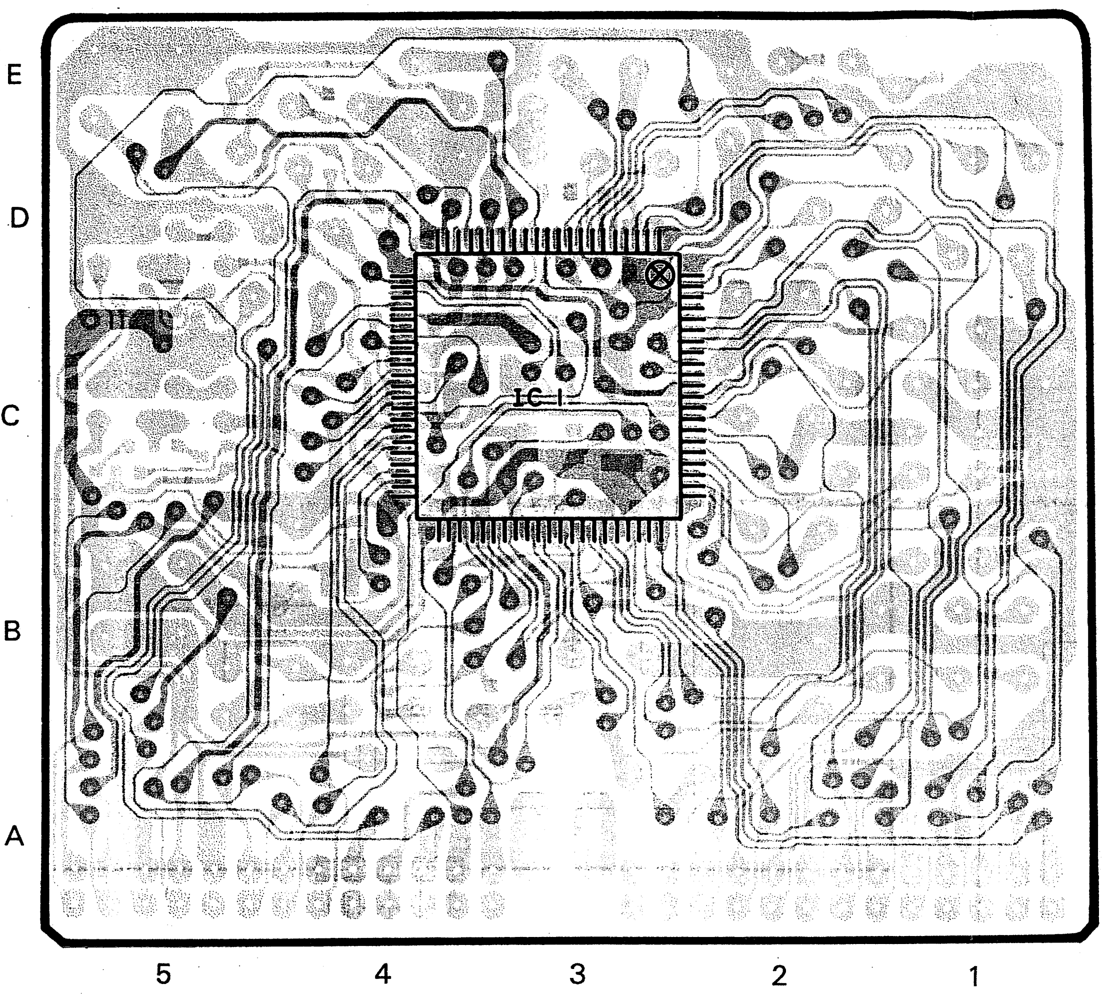
SERVICE AUDIO-VIDEO
Mirosław Bogórski
ul. Kraszewskiego 31
05-800 PRUSZKÓW
Tel. 728-37-19

4.19 AUDIO UNIT SCHEMATIC DIAGRAM

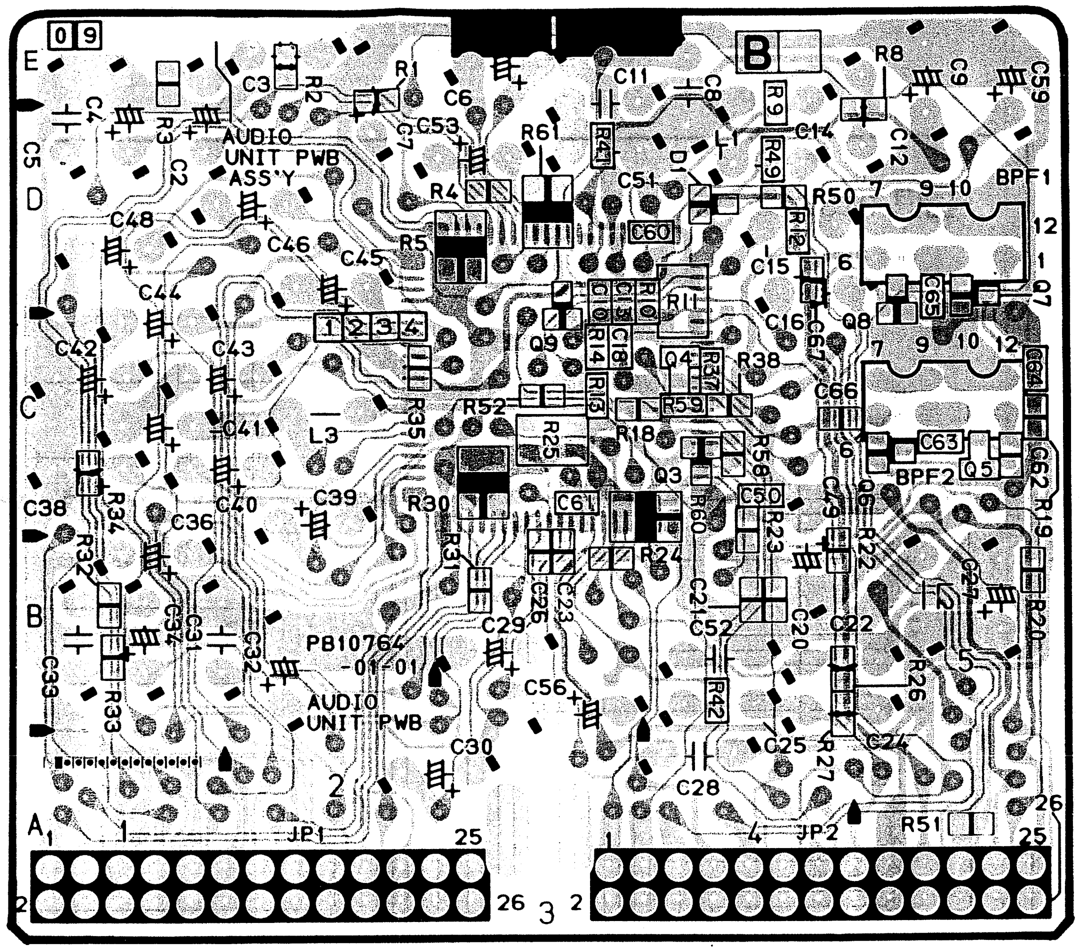

TO AUDIO JP1 (Page 4-16)
JP1
AUX 2 IN(R)
N.C
AUX 1 IN(R)
N.C
AUX 1 IN(L)
TU IN(R)
AUX 2 IN(L)
GND
GND
TU IN(L)
FIX OUT(R)
SAP IN
VARI OUT(R)
RF OUT
GND
EVR(R)
VARI OUT(L)
EVR(L)
FIX OUT(L)
MIC IN
HP CTL
MIC CTL
N.C
N.C
N.C
N.C
TO AUDIO JP2 (Page 4-16)
JP2
NOR IN
N.C
NOR OUT
N.C
AGC DET
N.C
REC FM(R)
PAL(L)
REC FM(L)
NTSC(L)
PAL(H)
CTL 3
PB FM IN
CTL 4
A.FF
CTL 5
GND
H.EE(L)
AL 12V
ND(L)
AL 5V
A.MUTE(L)
D.AL 5V
S.DATA
D.GND
S.CLK
UNSW 12V
UNSW 5V
R30 R DEVIATION
R25 R CARRIER NTSC
R60 R CARRIER PAL
R5 L DEVIATION
R11 L CARRIER NTSC
R61 L CARRIER PAL
IC1 JCP0036
Q3 DTC114WU
Q4 DTC143EU
Q5 DTC143EU
Q6 DTC143EU
Q7 DTC143EU
Q8 DTC143EU
Q9 DTC114WU
BPF2
BPF1
DET
DET PEAK
PEAK DET
E VOL
A LPF
CCA
MIX
VREF1
VREF2
VOL CTL
L/ST/R MUTE
NOR/MIX /HIFI
A LIM
VCO
PC
PB LPF
RF LIM
REC LPF
DO CTL
MUTE CTL
HOLD CTL
BPF
GND
CLK
DATA
EE(L)
CTL5
CTL4
CTL3
CTL2
CTL1
5V
12V
09 AUDIO UNIT
A
B
C
D
E
F
G
H
1
2
3
4
5

4.20 AUDIO UNIT CIRCUIT BOARD

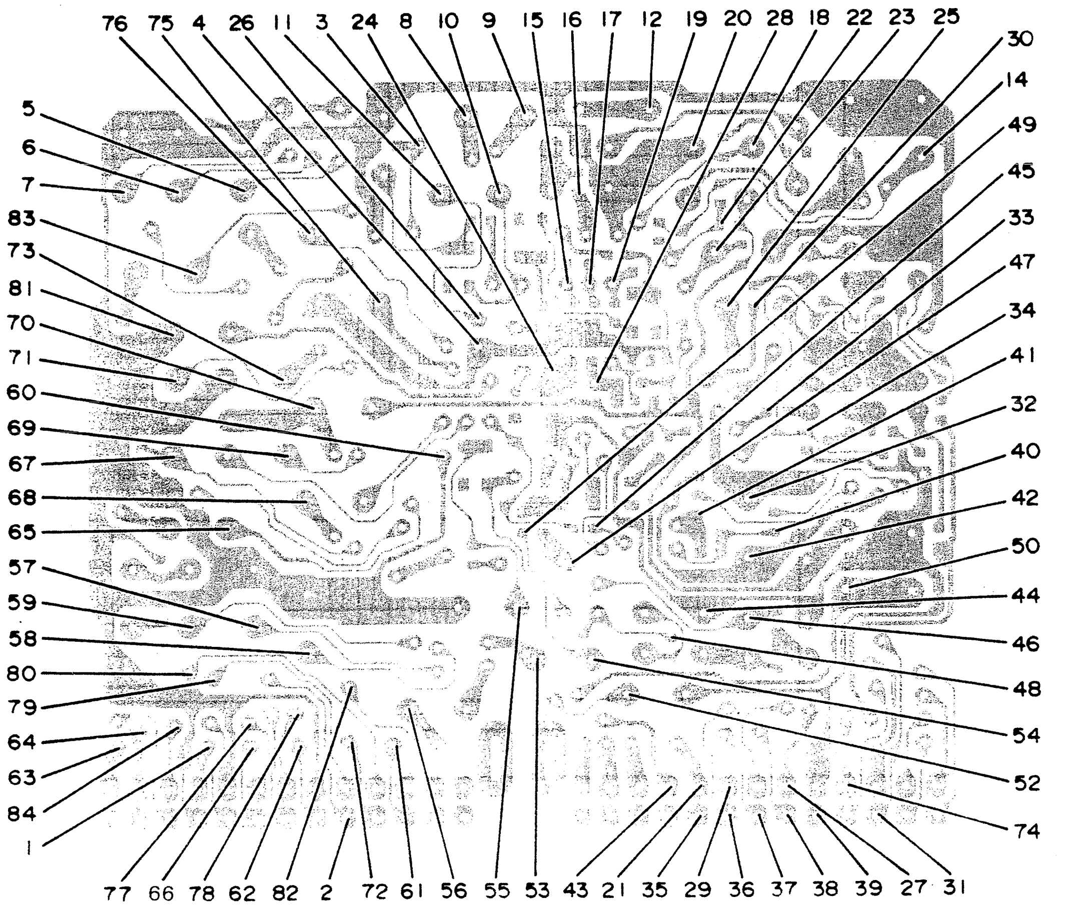
—COMPONENT SIDE—
(A)


E
D
C
B
A
IC-1
5
4
3
2
1

—FOIL SIDE—
(B)


09
B
E
D
C
B
A
AUDIO UNIT PWB ASS'Y
PB10764-01-01
AUDIO UNIT PWB
C3
R2
R1
C6
C7
C53
R61
C11
C8
R9
R8
C9
C59
C4
C5
R3
C2
R4
R5
R41
C51
D1
R49
C14
C12
BPF1
R12
R50
C48
C46
C45
C60
C15
C44
C16
C67
Q8
C65
Q7
C42
C43
R35
R52
R25
Q9
R14
C18
Q4
R37
R38
C66
C64
C41
L3
R18
R59
R58
C63
Q5
BPF2
C62
R19
C38
R34
C36
C40
C39
R30
R31
C61
R60
R24
Q3
C50
R23
C49
Q6
R22
C27
R32
C34
C31
C32
C29
C26
C23
C21
C52
C20
C22
R26
R20
C33
R33
C56
R42
C30
C25
R27
C24
C28
JP1
JP2
R51
1
2
25
26
3

—IC PIN NUMBER LOCATION (FOIL SIDE)—


76
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84
1
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78
62
82
2
72
61
56
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LEADLESS COMPONENT PARTS LOCATION GUIDE <AUDIO UNIT PWB>

REF. No.	LOCATION
IC	
IC1	A-3C
TRANSISTOR	
Q3	B-4C
Q4	B-4C
Q5	B-5C
Q6	B-5C
Q7	B-5D
Q8	B-5D
Q9	B-3C
DIODE	
D1	B-4D
RESISTOR	
R1	B-2E
R2	B-2E
R3	B-1E
R4	B-3D
R5	B-3D
R8	B-5D
R9	B-4D
R10	B-4D
R11	B-4D
R12	B-4D

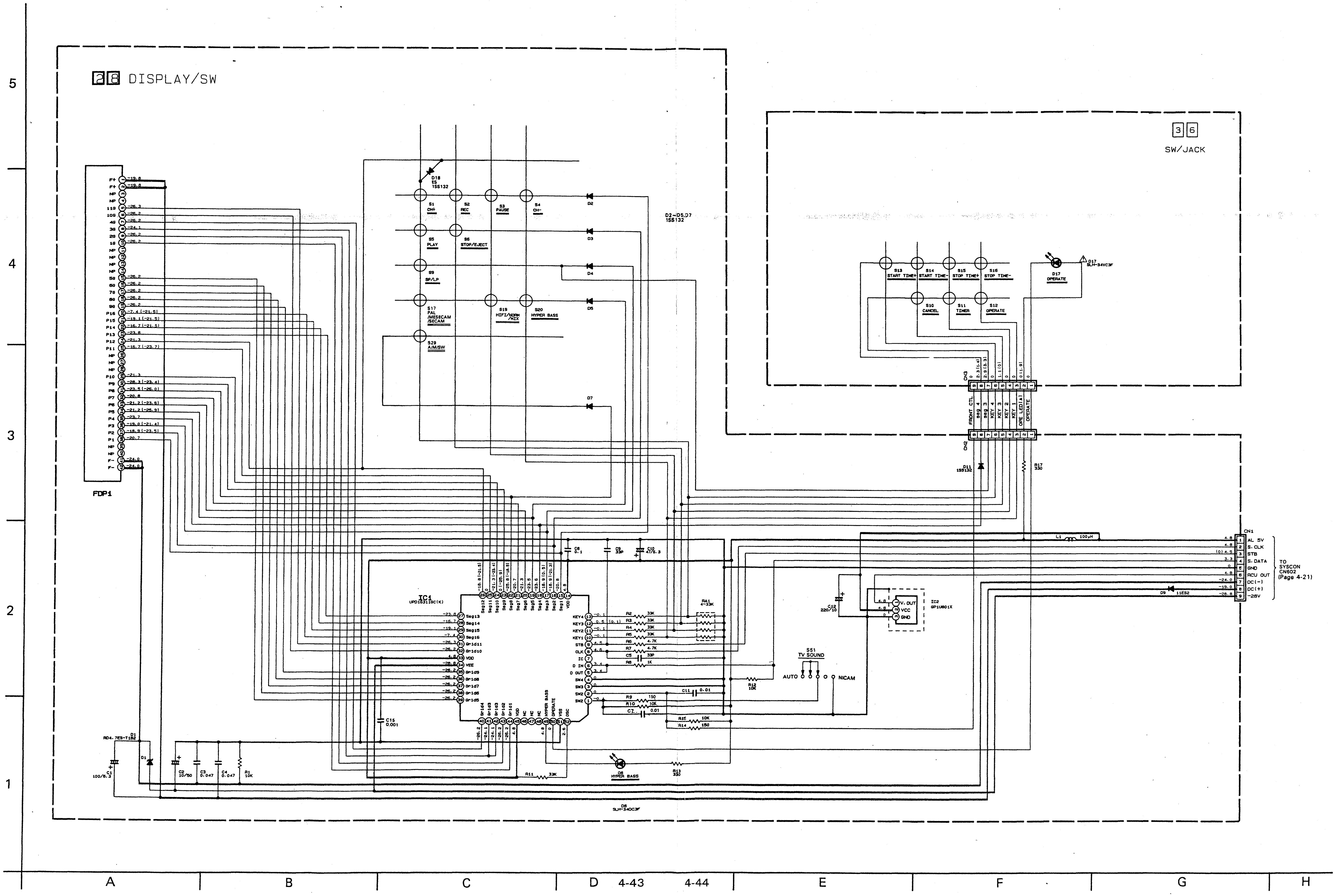
REF. No.	LOCATION
RESISTOR	
R13	B-3C
R14	B-3C
R18	B-3C
R19	B-5C
R20	B-5B
R22	B-4B
R23	B-4B
R24	B-3B
R25	B-3C
R26	B-4B
R27	B-4B
R30	B-3C
R31	B-3B
R32	B-1B
R33	B-1B
R34	B-1C
R35	B-2C
R37	B-4C
R38	B-4C
R41	B-3D
R42	B-4B
R49	B-4D
R50	B-4D
R51	B-5A

REF. No.	LOCATION
RESISTOR	
R52	B-3C
R58	B-4C
R59	B-4C
R60	B-4C
R61	B-3D
CAPACITOR	
C10	B-3D
C13	B-3D
C18	B-3C
C20	B-4B
C21	B-4B
C23	B-3B
C26	B-3B
C50	B-4C
C60	B-4D
C61	B-3C
C62	B-5C
C63	B-5C
C64	B-5C
C65	B-5D
C66	B-4C
C67	B-4D

MAIN COMPONENT PARTS LOCATION GUIDE <AUDIO UNIT PWB>

REF. No.	LOCATION
IC	
IC1	A-3C
TRANSISTOR	
Q3	B-4C
Q4	B-4C
Q5	B-5C
Q6	B-5C
Q7	B-5D
Q8	B-5D
Q9	B-3C
CONNECTOR	
JP1	B-2A
JP2	B-4A
ADJUSTMENT	
R5	B-3D
R11	B-4D
R25	B-3C
R30	B-3C
R60	B-4C
R61	B-3D

4.21 DISPLAY/SW & SW/JACK SCHEMATIC DIAGRAMS


28 DISPLAY/SW
36 SW/JACK
FDP1
F+ 1 -19.8
F+ 2 -19.8
NP 3
NP 4
11G 5 -26.3
10G 6 -26.2
4G 7 -26.2
3G 8 -24.1
2G 9 -26.2
1G 10 -26.2
NP 11
NP 12
NP 13
NP 14
5G 15 -26.2
6G 16 -26.2
7G 17 -26.2
8G 18 -26.2
9G 19 -26.2
P16 20 -7.4 (-21.5)
P15 21 -19.1 (-21.5)
P14 22 -16.7 (-21.5)
P13 23 -23.8
P12 24 -21.3
P11 25 -16.7 (-23.7)
NP 26
NP 27
NP 28
P10 29 -21.3
P9 30 -28.3 (-23.4)
P8 31 -23.5 (-26.0)
P7 32 -20.8
P6 33 -21.2 (-23.6)
P5 34 -21.2 (-25.9)
P4 35 -23.7
P3 36 -19.0 (-21.4)
P2 37 -18.9 (-23.5)
P1 38 -20.7
NP 39
NP 40
F- 41 -24.0
F- 42 -24.0
D18 ES 1SS132
S1 CH+
S2 REC
S3 PAUSE
S4 CH-
S5 PLAY
S6 STOP/EJECT
S9 SP/LP
S17 PAL /MESECAM /SECAM
S19 HIFI/NORM /MIX
S20 HYPER BASS
S29 A/M/SW
D2
D3
D4
D5
D7
D2~D5,D7 1SS132
S13 START TIME+
S14 START TIME-
S15 STOP TIME+
S16 STOP TIME-
S10 CANCEL
S11 TIMER
S12 OPERATE
D17 OPERATE
D17 SLH-34VC3F
CN3
0
2.3 (1.4)
2.9 (3.3)
0
1.1 (0)
0
0
0 (1.9)
0
9 8 7 6 5 4 3 2 1
FRONT CTL
seg 4
seg 3
KEY 4
KEY 3
KEY 2
KEY 1
OPE LED (A)
OPERATE
CN2
D11 1SS132
R17 330
IC1 UPD16311GC(K)
Seg12 26 -18.8 (-21.5)
Seg11 25 0
Seg10 24 -21.3 (-23.4)
Seg9 23 0 (-25.9)
Seg8 22 -25.8 (-18.5)
Seg7 21 -20.7
Seg6 20 -21.3
Seg5 19 -23.5
Seg4 18 -23.6
Seg3 17 -18.9 (0.5)
Seg2 16 -18.9 (-21.3)
Seg1 15 -20.8
VDD 14 4.8
Seg13 27 -23.8
Seg14 28 -16.7
Seg15 29 -19.1
Seg16 30 -7.4
Grid11 31 -26.3
Grid10 32 -26.2
VDD 33 4.8
VEE 34 -28.8
Grid9 35 -26.2
Grid8 36 -26.2
Grid7 37 -26.2
Grid6 38 -26.2
Grid5 39 -26.2
Grid4 40 -26.2
Grid3 41 -24.1
Grid3 42 -24.1
Grid2 43 -26.2
Grid1 44 -26.2
VDD 45 4.8
NC 46
NC 47
NC 48
HYPER BASS 49 4.8
OPERATE 50 0
VSS 51
OSC 52 2.6
KEY4 13 -0.1
KEY3 12 0.5 (0.1)
KEY2 11 -0.1
KEY1 10 -0.1
STB 9 4.5
CLK 8 4.6
IC 7
D IN 6 3.4
D OUT 5 3.4
SW4 4 0
SW3 3 0
SW2 2 0
SW2 1 -0.4
R2 33K
R3 33K
R4 33K
R5 33K
R6 4.7K
R7 4.7K
C5 33P
R8 1K
RA1 4~33K
C8 0.1
C9 33P
C10 47/6.3
C11 0.01
R9 150
R10 10K
C7 0.01
R15 10K
R14 150
R12 10K
R11 33K
R13 330
D8 HYPER BASS
D8 SLH-340C3F
C15 0.001
D1 RD4.7ES-T1B2
D1
C1 100/6.3
C2 10/50
C3 0.047
C4 0.047
R1 10K
S51 TV SOUND
AUTO
NICAM
C12 220/10
IC2 GP1U801X
1 V.OUT 4.8
2 VCC 4.8
3 GND 0
L1 100μH
D9 11ES2
CN1
1 AL 5V 4.8
2 S.CLK 4.8
3 STB (0) 4.5
4 S.DATA 3.3
5 GND 0
6 RCU OUT 4.8
7 DC(-) -24.0
8 DC(+) -19.0
9 -28V -28.8
TO SYSCON CN602 (Page 4-21)
5
4
3
2
1
A
B
C
D
E
F
G
H

MAIN COMPONENT PARTS LOCATION GUIDE<DISPLAY/SW PWB>

REF. No.	LOCATION
IC	
IC1	13B
IC2	20B

REF. No.	LOCATION
DIODE	
D1	4N
D2	5D
D3	5E
D4	17E
D5	3B
D6	5A
D7	4B
D8	9B
D9	3D
D11	17B
D19	2C
D21	2D

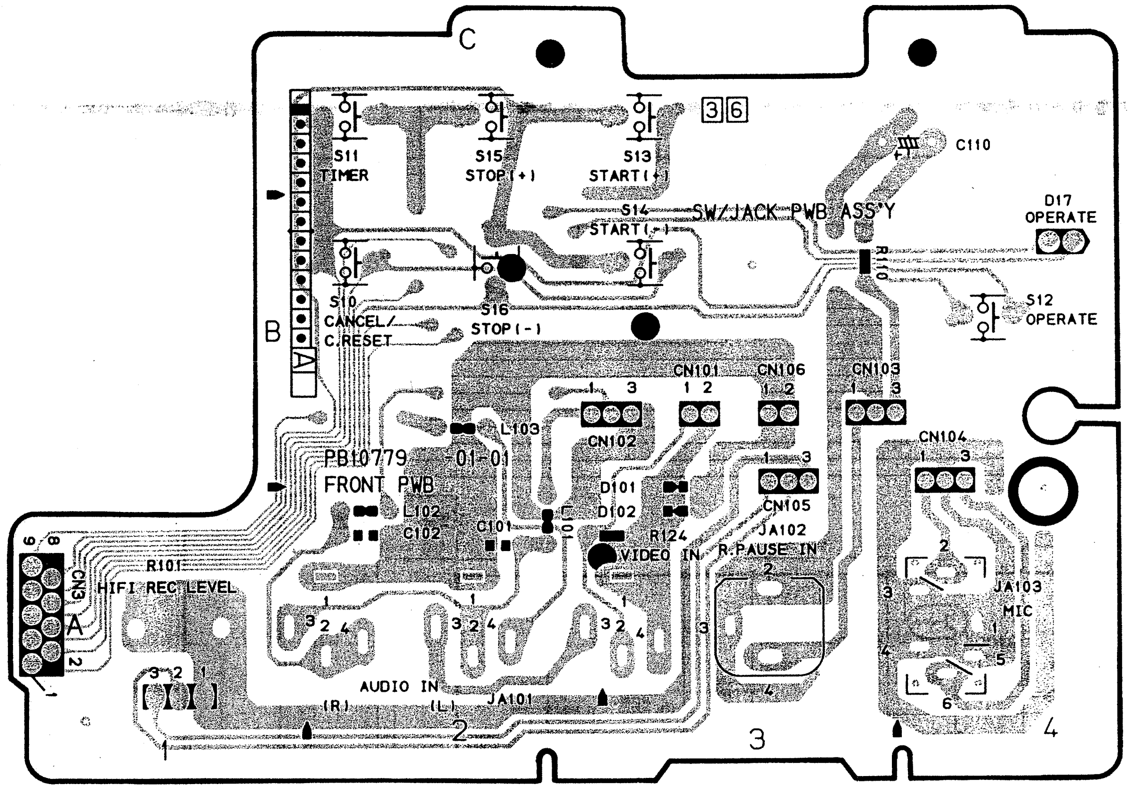
REF. No.	LOCATION
CONNECTOR	
CN1	2E
CN2	20B

—SW/JACK—

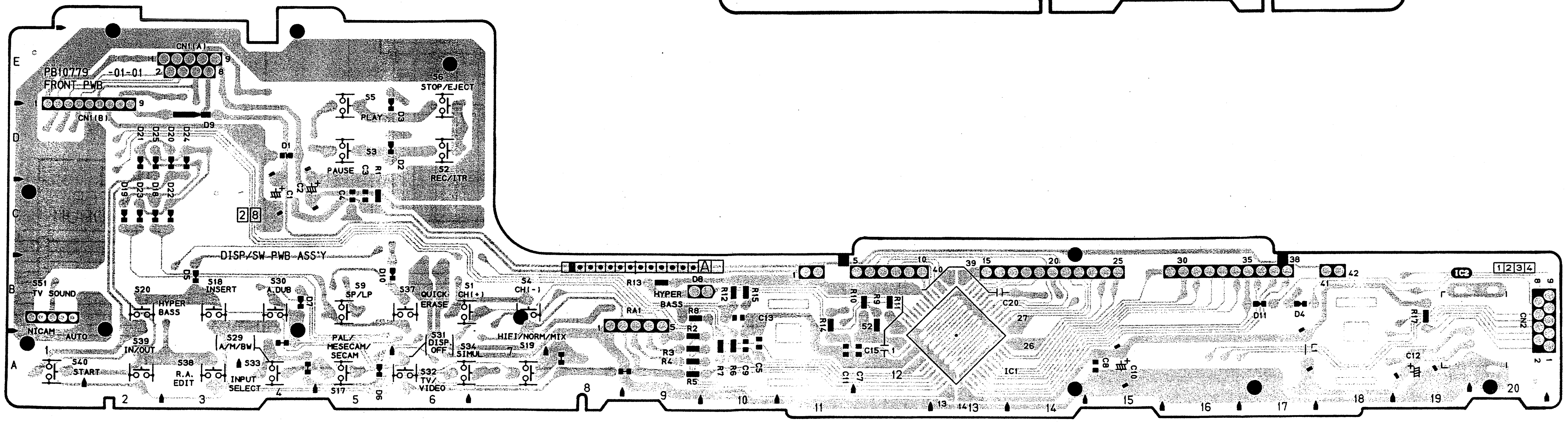
MAIN COMPONENT PARTS LOCATION GUIDE<SW/JACK PWB>

REF. No.	LOCATION
DIODE	
D17	4B
D101	3B
D102	3A

REF. No.	LOCATION
CONNECTOR	
CN3	1A
CN101	3B
CN102	3B
CN103	3B



C
B
A
S11 TIMER
S15 STOP(+)
S13 START(+)
S14 START(-)
SW/JACK PWB ASS'Y
C110
D17 OPERATE
R110
S10 CANCEL/ C.RESET
S16 STOP(-)
S12 OPERATE
CN101
CN106
CN103
CN102
L103
PB10779-01-01 FRONT PWB
D101
D102
CN104
CN105
JA102
R124
VIDEO IN
R.PAUSE IN
L102
C102
C101
R101
HIFI REC LEVEL
CN3
AUDIO IN (R) (L)
JA101
JA103 MIC
1
2
3
4



E
D
C
B
A
CN1(A)
PB10779-01-01 FRONT PWB
CN1(B)
S6 STOP/EJECT
S5 PLAY
S3 PAUSE
S2 REC/ITR
D9
D1
D2
D3
DISP/SW PWB ASS'Y
S51 TV SOUND
NICAM AUTO
S20 HYPER BASS
S18 INSERT
S30 A.DUB
S9 SP/LP
S37 QUICK ERASE
S1 CH(+)
S4 CH(-)
S39 IN/OUT
S40 START
S38 R.A. EDIT
S29 A/M/BW
S33 INPUT SELECT
PAL/MESECAM/SECAM
S17
S31 DISP OFF
S34 SIMUL
S32 TV/VIDEO
S19 HIFI/NORM/MIX
R13
D8
HYPER BASS
RA1
R12
R15
R2
R3
R4
R5
R6
R7
R8
C13
C15
C20
IC1
IC2
D11
D4
CN2
C12
1
2
3
4
5
6
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9
10
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14
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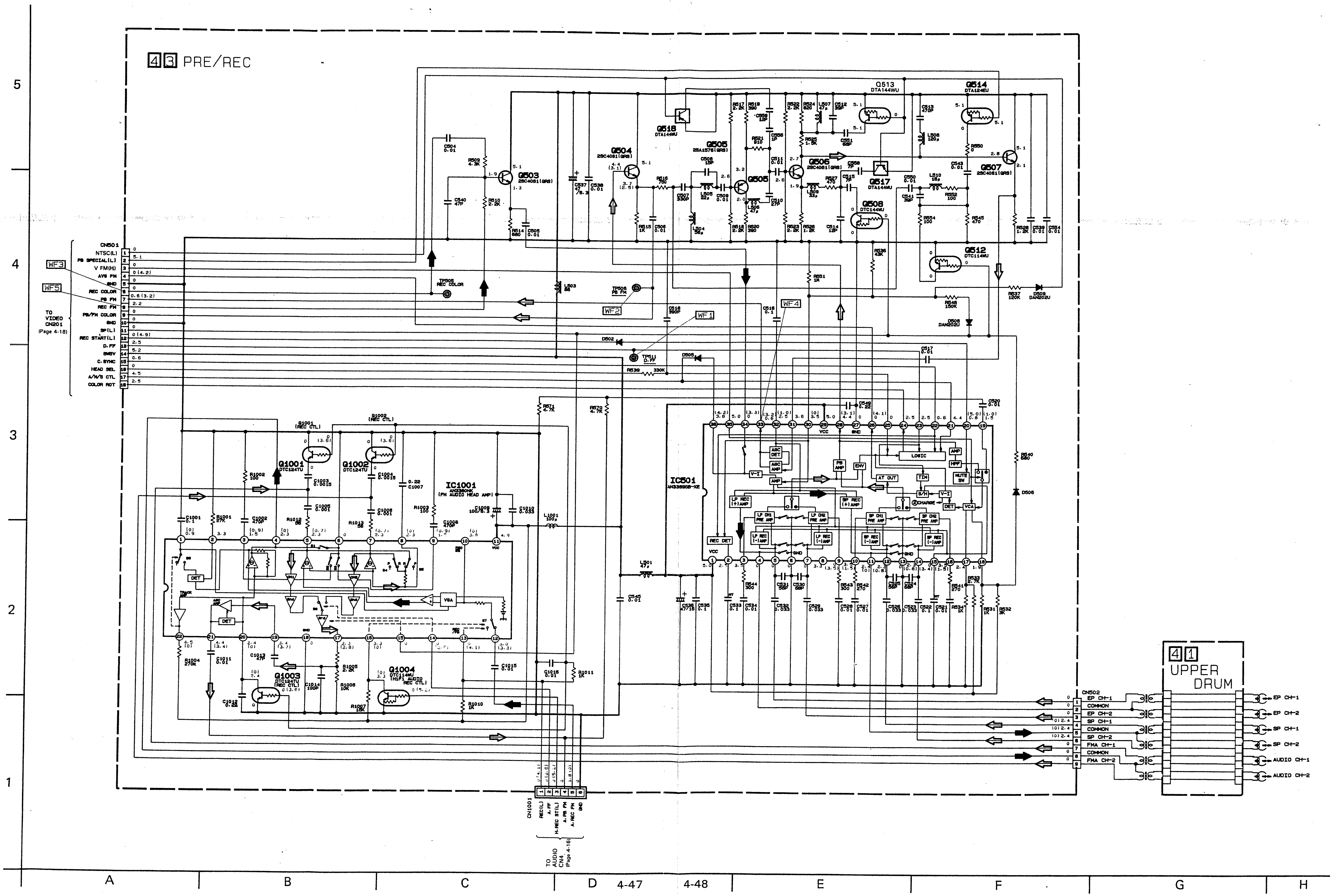
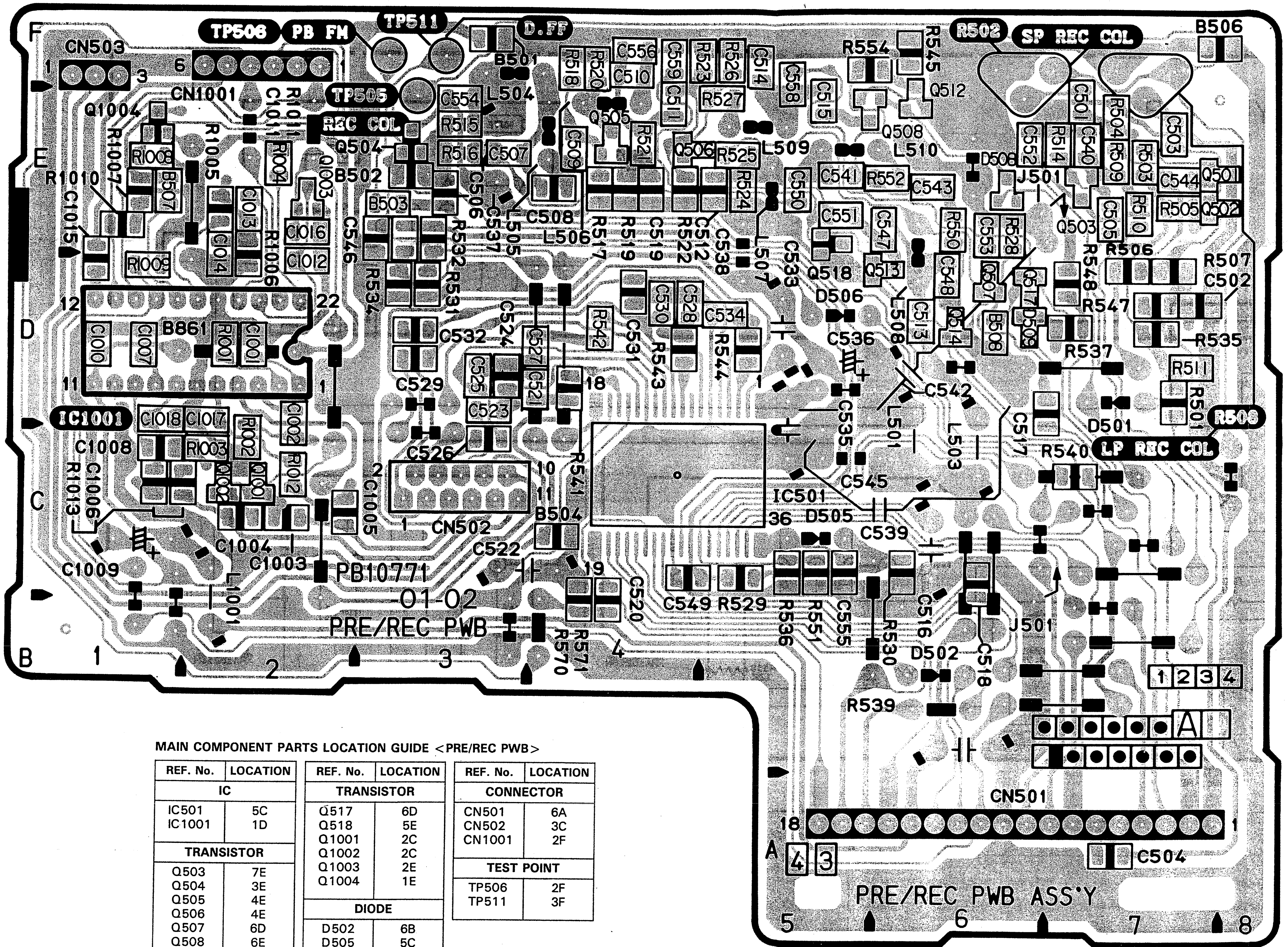
20

4.23 PRE/REC SCHEMATIC DIAGRAM



43 PRE/REC
CN501
NTSC(L)
PB SPECIAL(L)
V FM(H)
AYS FM
GND
REC COLOR
PB FM
REC FM
PB/FM COLOR
GND
SP(L)
REC START(L)
D.FF
SW5V
C.SYNC
HEAD SEL
A/H/S CTL
COLOR ROT
WF3
WF5
TO VIDEO CN201 (Page 4-18)
Q503 2SC4081(QRS)
Q504 2SC4081(QRS)
Q505 2SA1576(QRS)
Q506 2SC4081(QRS)
Q507 2SC4081(QRS)
Q508 DTC144WU
Q512 DTC114WU
Q513 DTA144WU
Q514 DTA124EU
Q516 DTA144WU
Q517 DTA144WU
TP505 REC COLOR
TP506 PB FM
TP511 D.FF
WF1
WF2
WF4
D502
D505
D506
D508 DAN202U
D509 DAN202U
IC501 AN3389SB-XE
ABC DET
ABC AMP
V-I
AMP
PB AMP
ENV
LOGIC
HPF
MUTE SW
AT OUT
TIM
S/H
CHARGE
DET
VCA
LP REC (+)AMP
SP REC (+)AMP
LP CH1 PRE AMP
LP CH2 PRE AMP
SP CH1 PRE AMP
SP CH2 PRE AMP
LP REC (-)AMP
SP REC (-)AMP
REC DET
VCC
GND
IC1001 AN3380NK (FM AUDIO HEAD AMP)
Q1001 DTC124TU (REC CTL)
Q1002 DTC124TU (REC CTL)
Q1003 DTC124TU (REC CTL)
Q1004 DTC114WU (HiFi AUDIO REC CTL)
DET
TRACK AMP
ABC AMP
VBA
CN1001
REC(L)
A.FF
H.REC ST(L)
A.PB FM
A.REC FM
GND
TO AUDIO CN4 (Page 4-16)
CN502
EP CH-1
COMMON
EP CH-2
SP CH-1
COMMON
SP CH-2
FMA CH-1
COMMON
FMA CH-2
41 UPPER DRUM
EP CH-1
EP CH-2
SP CH-1
SP CH-2
AUDIO CH-1
AUDIO CH-2
1
2
3
4
5
A
B
C
D
E
F
G
H

4.24 PRE/REC CIRCUIT BOARD



F
E
D
C
B
1
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3
4
5
6
7
8
TP506
PB FM
TP511
D.FF
TP505
REC COL
R502
SP REC COL
B506
R508
LP REC COL
IC1001
CN503
CN1001
Q1004
R1010
R1007
R1008
B507
C1015
R1005
R1009
C1013
C1014
R1004
R1006
Q1003
B502
C1016
C1012
Q504
B503
C546
R534
R532
R531
B861
C1010
C1007
R1001
C1001
C1018
C1017
C1008
R1003
R1002
C1002
R1012
R1013
C1006
Q1002
Q1001
C1009
C1004
C1003
C1005
L1001
PB10771
-01-02
PRE/REC PWB
CN502
C554
L504
R515
R516
C507
C506
C537
L505
B501
R518
R520
C556
C510
C559
C511
R523
R526
R527
C514
C558
C515
Q505
C509
C508
L506
R521
R517
R519
C519
R522
C512
C538
Q506
R525
L509
R524
C550
R554
R545
Q512
Q508
L510
D508
C541
R552
C543
C551
C547
Q513
Q518
D506
L507
C533
R550
C553
R528
C548
Q507
Q517
D509
B508
C513
Q514
L508
C536
C542
L501
L503
C535
C545
IC501
D505
C539
C552
R514
C540
C501
R504
R509
R503
C503
C544
Q501
Q502
R505
R510
C505
Q503
J501
R506
R548
R507
C502
R547
R535
R537
R511
R501
D501
R540
C517
C532
C524
C527
C525
C521
C523
C529
C526
R542
C531
R543
C530
C528
C534
R544
R541
B504
C522
R571
R570
C520
C549
R529
R536
R551
C555
R530
C516
D502
C518
R539
CN501
C504
PRE/REC PWB ASS'Y
A
18
1
36
12
22
11
10
19

MAIN COMPONENT PARTS LOCATION GUIDE <PRE/REC PWB>

REF. No.	LOCATION
IC	
IC501	5C
IC1001	1D
TRANSISTOR	
Q503	7E
Q504	3E
Q505	4E
Q506	4E
Q507	6D
Q508	6E
Q512	6E
Q513	6D
Q514	6D

REF. No.	LOCATION
TRANSISTOR	
Q517	6D
Q518	5E
Q1001	2C
Q1002	2C
Q1003	2E
Q1004	1E
DIODE	
D502	6B
D505	5C
D506	5D
D508	6E
D509	6D

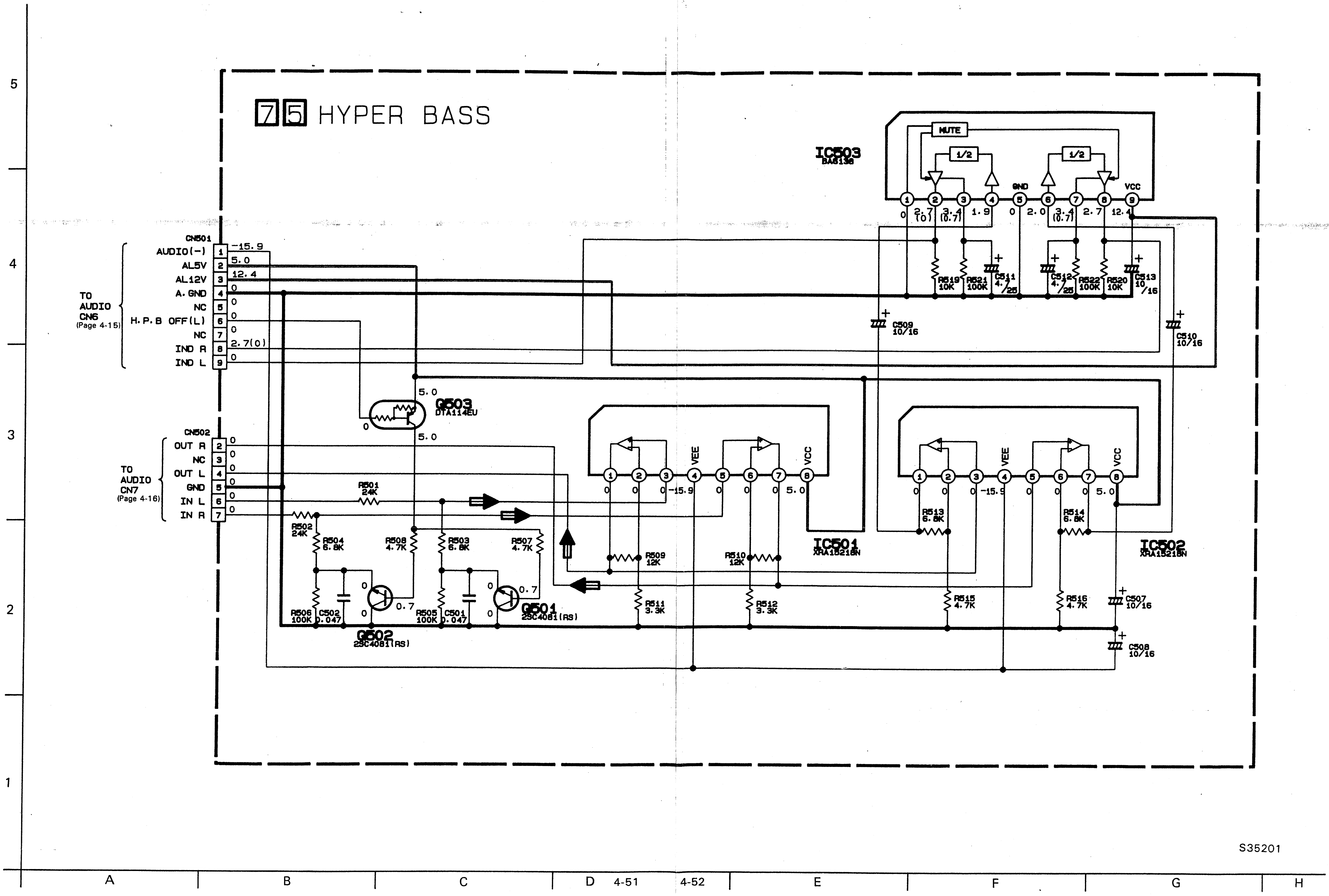
REF. No.	LOCATION
CONNECTOR	
CN501	6A
CN502	3C
CN1001	2F
TEST POINT	
TP506	2F
TP511	3F

LEADLESS COMPONENT PARTS LOCATION GUIDE <PRE/REC PWB>

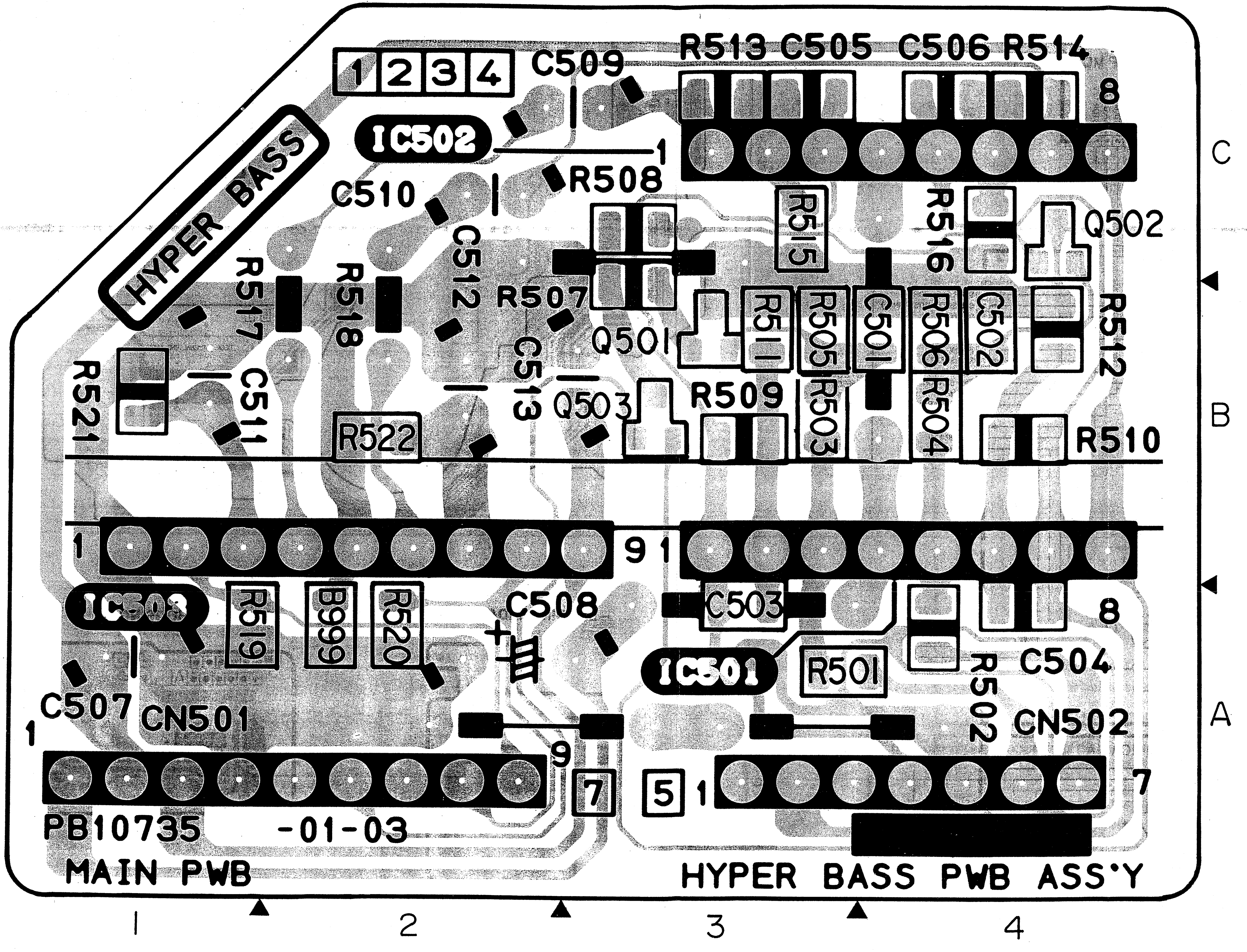
REF. No.	LOCATION
TRANSISTOR	
Q501	7E
Q502	7E
Q503	7E
Q504	3E
Q505	4E
Q506	4E
Q507	6D
Q508	6E
Q512	6E
Q513	6D
Q514	6D
Q517	6D
Q518	5E
Q1001	2C
Q1002	2C
Q1003	2E
Q1004	1E
DIODE	
D508	6E
D509	6D
RESISTOR	
R501	7D
R503	7E
R504	7E
R505	7E
R506	7E
R507	7E
R509	7E
R510	7E
R511	7D
R514	7E
R515	3E
R516	3E
R517	4E
R518	4F
R519	4E
R520	4F
R521	4E
R522	4E
R523	5F
R524	5E
R525	5E
R526	5F
R527	5E
R528	6E
R529	5C
R530	6C
R531	3D
R532	3E
R533	3E
R534	3D
R535	7D
R536	5C
R537	7D
R540	7C
R541	4D
R542	4D
R543	4D
R544	5D
R545	6F
R547	7D
R548	7D
R550	6E
R551	6C
R552	6E
R554	6F
R571	4B
R1001	2D
R1002	2C
R1003	2C
R1004	2E
R1005	2E
R1006	2D
R1007	1E
R1008	1E
R1009	1D
R1010	1E
R1012	2C
R1013	1C

REF. No.	LOCATION
CAPACITOR	
C501	7E
C502	7D
C503	7E
C504	7A
C505	7E
C506	3E
C507	3E
C508	4E
C509	4E
C510	4F
C511	4E
C512	5E
C513	6D
C514	5F
C515	5E
C517	6D
C518	6C
C519	4E
C520	4C
C521	4D
C523	3D
C524	3D
C525	3D
C526	3C
C527	4D
C528	4D
C529	4D
C530	4D
C531	4D
C532	3D
C534	5D
C540	7E
C541	5E
C543	6E
C544	7E
C546	3F
C547	6E
C548	6D
C549	4C
C550	5E
C551	5E
C552	6E
C553	6E
C554	3E
C555	5C
C556	4F
C558	5F
C559	4F
C1001	2D
C1002	2C
C1003	2C
C1004	2C
C1005	2C
C1006	1C
C1007	1D
C1008	1C
C1010	1D
C1012	2D
C1013	2E
C1014	2E
C1015	1E
C1016	2E
C1017	2D
C1018	1B

4.25 HYPER BASS SCHEMATIC DIAGRAM


75 HYPER BASS
IC503
BA6138
MUTE
1/2
1/2
GND
VCC
2.7 (0)
3.4 (0.7)
1.9
2.0
3.4 (0.7)
2.7
12.4
R519 10K
R521 100K
C511 4.7/25
C512 4.7/25
R522 100K
R520 10K
C513 10/16
C509 10/16
C510 10/16
CN501
AUDIO(-)
AL5V
AL12V
A.GND
NC
H.P.B OFF(L)
NC
IND R
IND L
-15.9
5.0
12.4
2.7(0)
TO AUDIO CN6 (Page 4-15)
Q503
DTA114EU
5.0
CN502
OUT R
NC
OUT L
GND
IN L
IN R
TO AUDIO CN7 (Page 4-16)
R501 24K
R502 24K
R504 6.8K
R508 4.7K
R503 6.8K
R507 4.7K
R506 100K
C502 0.047
R505 100K
C501 0.047
Q502
2SC4081(RS)
Q501
2SC4081(RS)
0.7
VEE
VCC
-15.9
IC501
XRA15218N
R509 12K
R510 12K
R511 3.3K
R512 3.3K
IC502
XRA15218N
R513 6.8K
R514 6.8K
R515 4.7K
R516 4.7K
C507 10/16
C508 10/16
S35201
5
4
3
2
1
A
B
C
D
E
F
G
H

4.26 HYPER BASS CIRCUIT BOARD


1 2 3 4
C509
IC502
HYPER BASS
R513 C505 C506 R514
8
1
R508
C510
C512
R517
R518
R507
R515
R516
Q502
Q501
R511
R505
C501
R506
C502
R512
R521
C511
C513
Q503
R509
R503
R504
R522
R510
1
9 1
8
IC503
R519
B999
R520
C508
C503
C504
IC501
R501
R502
C507
CN501
CN502
1
9
7
5
1
7
PB10735 -01-03
MAIN PWB
HYPER BASS PWB ASS'Y
C
B
A
1
2
3
4

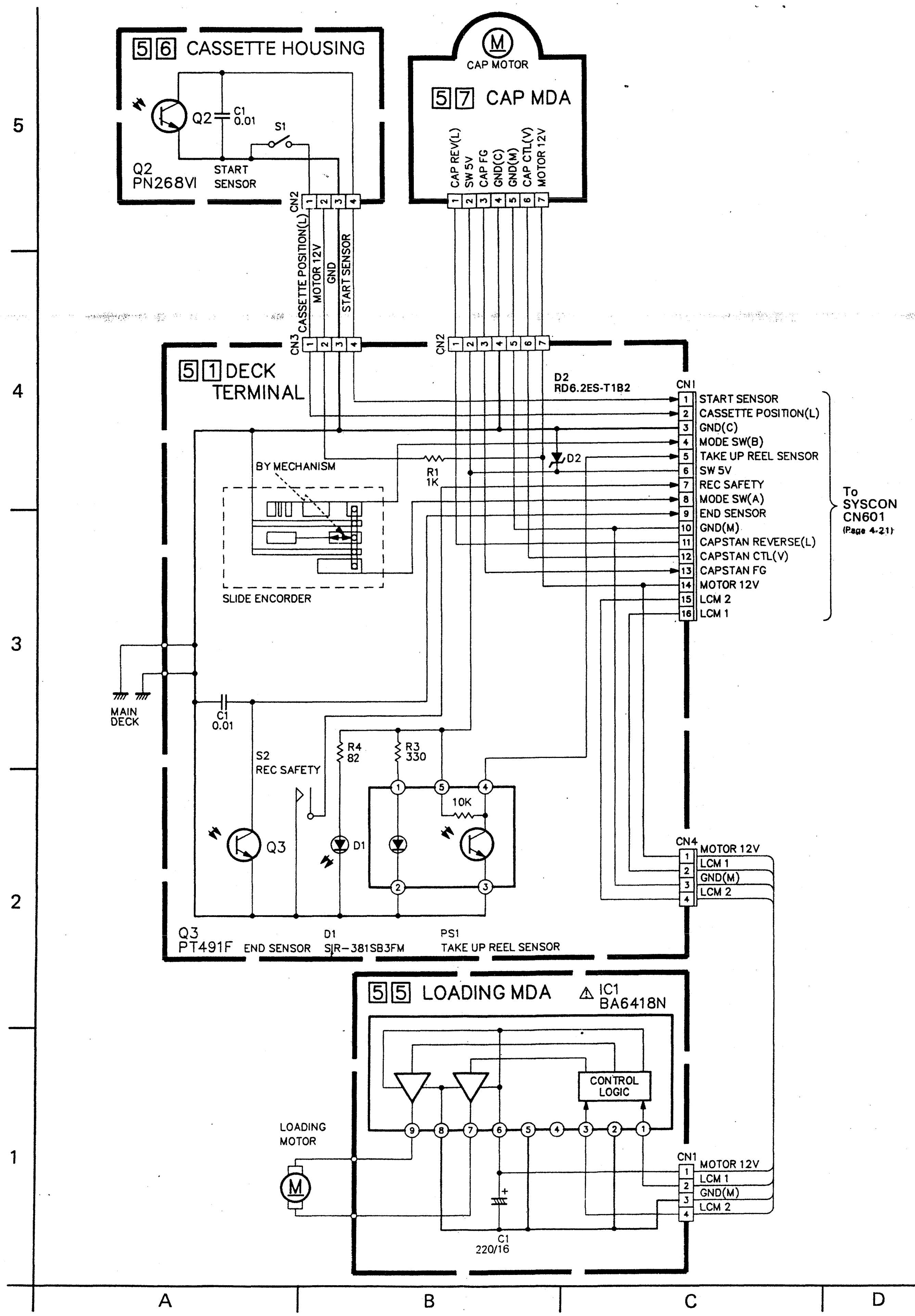
MAIN COMPONENT PARTS LOCATION GUIDE
<HYPER BASS BOARD>

REF No.	LOCATION
IC	
IC501 IC502 IC503	3A 2C 1A
TRANSISTOR	
Q501 Q502 Q503	3B 4C 3B
CONNECTOR	
CN501 CN502	1A 4A

LEADLESS COMPONENT PARTS LOCATION GUIDE
<HYPER BASS BOARD>

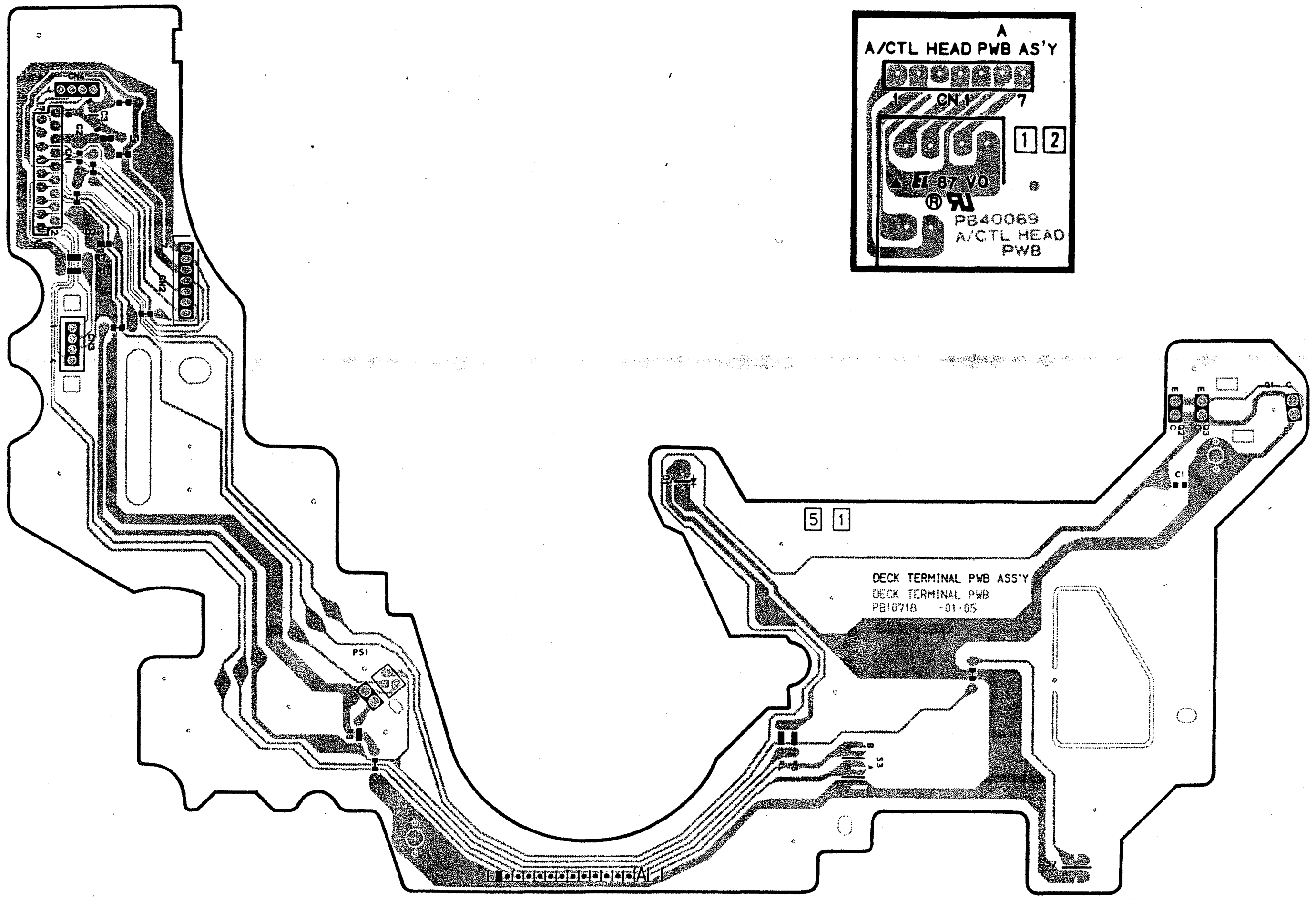
REF No.	LOCATION
TRANSISTOR	
Q501 Q502 Q503	3B 4C 3B
RESISTOR	
R501 R502 R503 R504 R505 R506 R507 R508 R509 R510 R511 R512 R513 R514 R515 R516 R519 R520 R521 R522	3A 4A 3B 4B 3B 4B 3B 3C 3B 4B 3B 4B 3C 4C 3C 4C 1A 2A 1B 2B
CAPACITOR	
C501 C502 C503 C504 C505 C506	4B 4B 4A 4A 3C 4C

4.27 DECK TERMINAL, CASSETTE HOUSING, CAPSTAN MDA & LOADING MDA SCHEMATIC DIAGRAMS


5 6 CASSETTE HOUSING
Q2
C1
0.01
S1
Q2
PN268VI
START
SENSOR
CN2
CAP MOTOR
5 7 CAP MDA
CAP REV(L)
SW 5V
CAP FG
GND(C)
GND(M)
CAP CTL(V)
MOTOR 12V
CASSETTE POSITION(L)
MOTOR 12V
GND
START SENSOR
CN3
CN2
5 1 DECK
TERMINAL
D2
RD6.2ES-T1B2
CN1
1 START SENSOR
2 CASSETTE POSITION(L)
3 GND(C)
4 MODE SW(B)
5 TAKE UP REEL SENSOR
6 SW 5V
7 REC SAFETY
8 MODE SW(A)
9 END SENSOR
10 GND(M)
11 CAPSTAN REVERSE(L)
12 CAPSTAN CTL(V)
13 CAPSTAN FG
14 MOTOR 12V
15 LCM 2
16 LCM 1
To
SYSCON
CN601
(Page 4-21)
BY MECHANISM
R1
1K
D2
SLIDE ENCORDER
MAIN
DECK
C1
0.01
S2
REC SAFETY
R4
82
R3
330
10K
Q3
D1
CN4
MOTOR 12V
1 LCM 1
2 GND(M)
3 LCM 2
4
Q3
PT491F END SENSOR
D1
SIR-381SB3FM
PS1
TAKE UP REEL SENSOR
5 5 LOADING MDA
⚠ IC1
BA6418N
CONTROL
LOGIC
LOADING
MOTOR
CN1
MOTOR 12V
1 LCM 1
2 GND(M)
3 LCM 2
4
C1
220/16
5
4
3
2
1
A
B
C
D

4.28 DECK TERMINAL, CASSETTE HOUSING, A/CTL HEAD & LOADING MDA CIRCUIT BOARDS

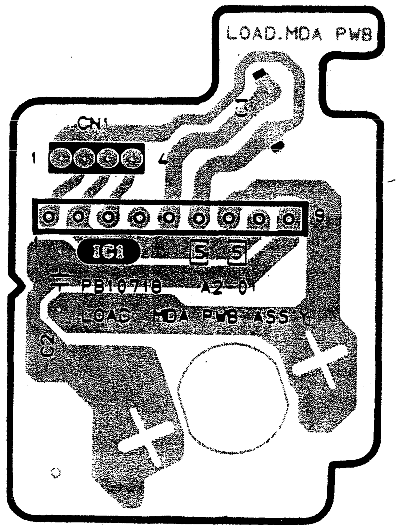
—DECK TERMINAL—


CN1
CN3
CN2
PS1
5 1
DECK TERMINAL PWB ASS'Y
DECK TERMINAL PWB
PB10718 -01-05
C1
A

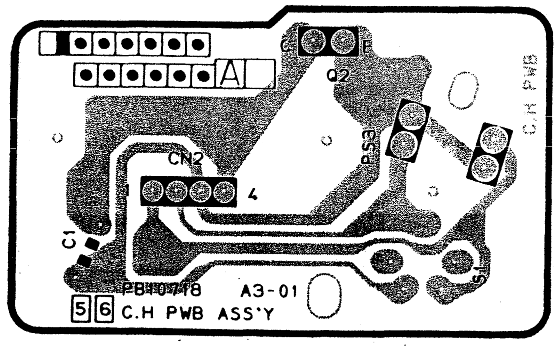
—A/CTL HEAD—

A
A/CTL HEAD PWB ASS'Y
1 CN1 7
1 2
87 VO
PB40069
A/CTL HEAD
PWB

—LOADING MDA—


LOAD.MDA PWB
CN1
1
4
9
IC1
5 5
PB10718 A2-01
LOAD MDA PWB ASS'Y
C1

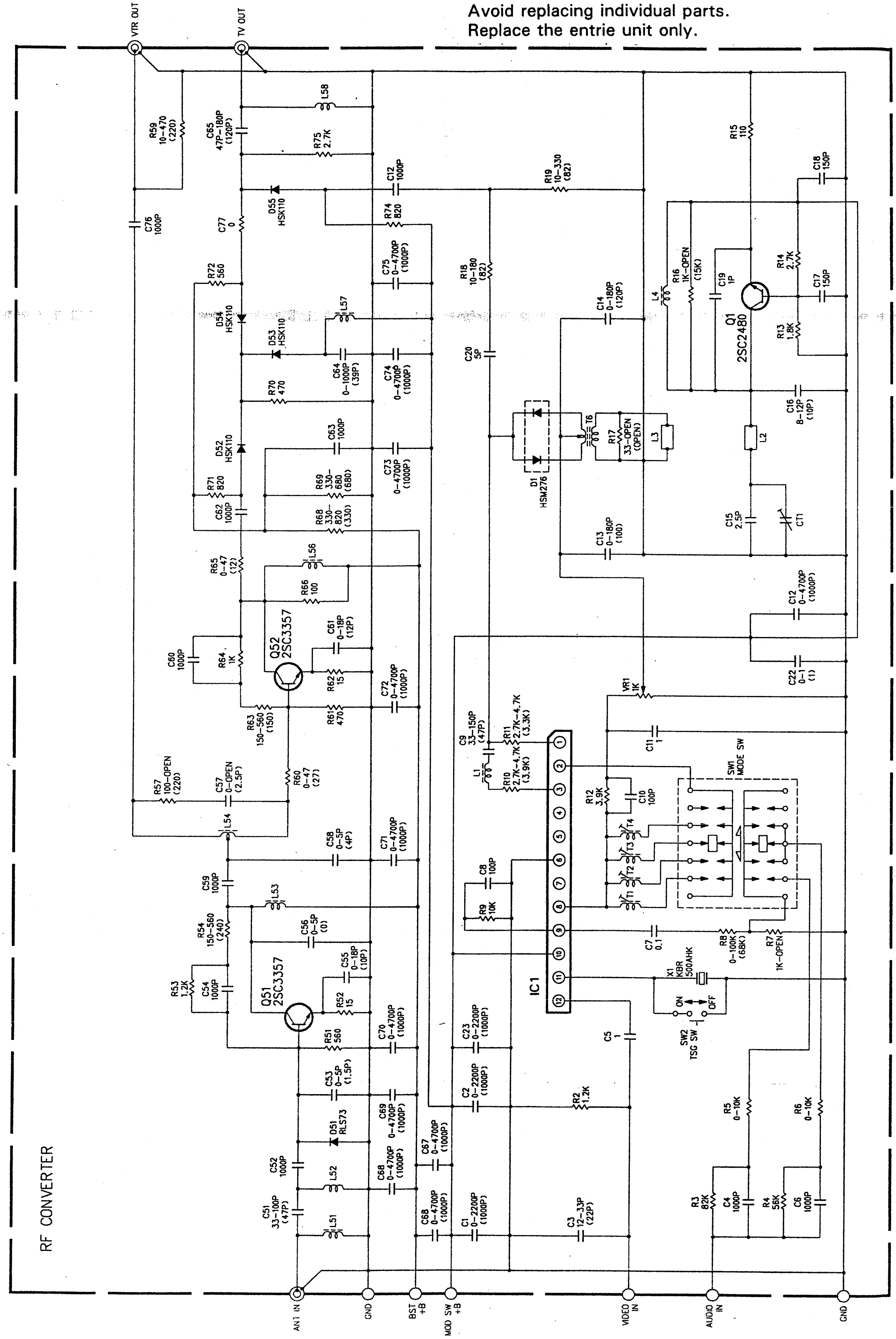
—CASSETTE HOUSING—


A
Q2
CN2
4
PS3
S1
C1
PB10718 A3-01
5 6 C.H PWB ASS'Y
C.H PWB

4.29 RF CONVERTER SCHEMATIC DIAGRAM

Notes:

1. All parts slown in this schematic are critical for safety.
2. This schematic is only for reference.
   Avoid replacing individual parts.
   Replace the entrie unit only.

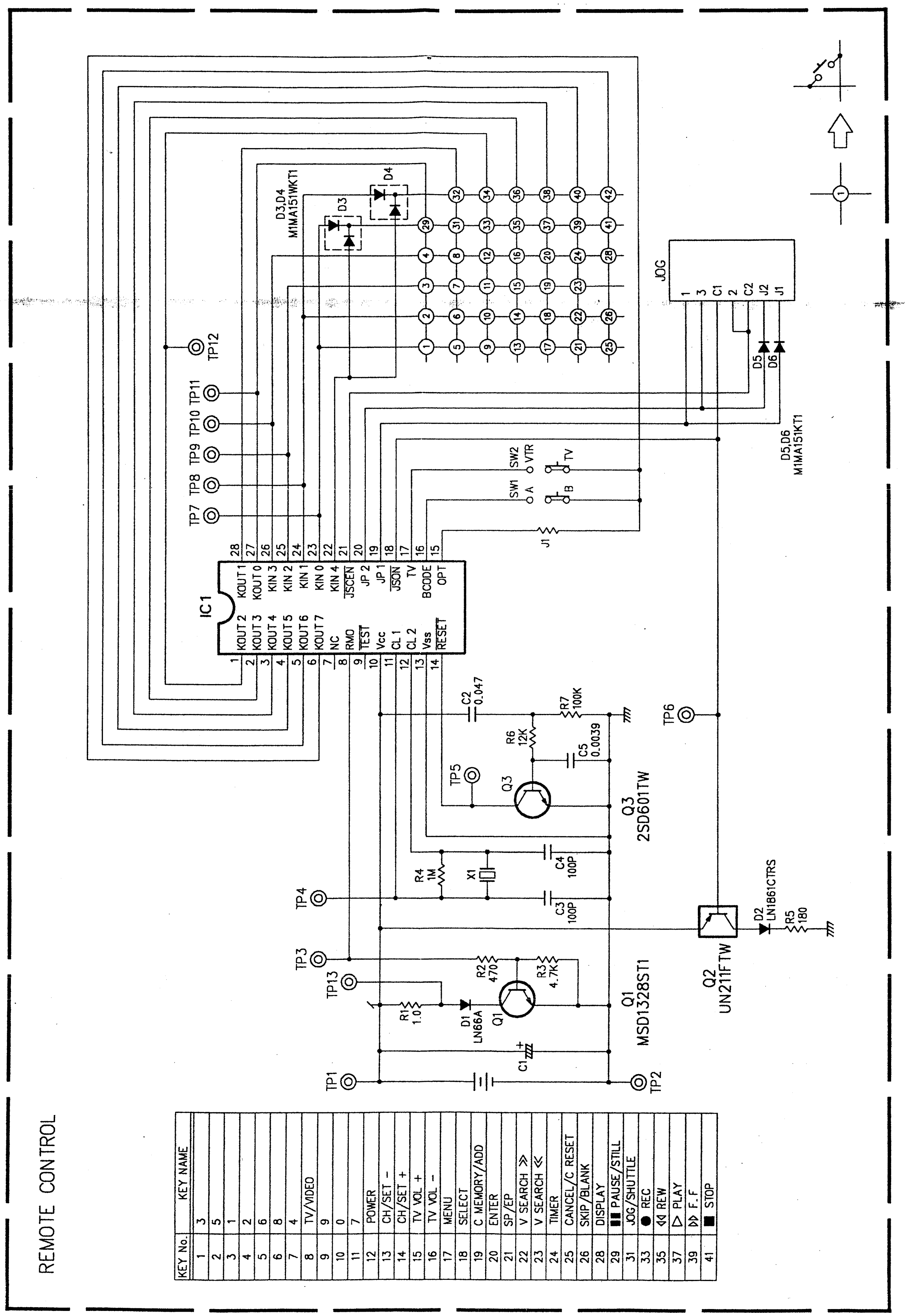


RF CONVERTER
VTR OUT
TV OUT
ANT IN
GND
BST +B
MOD SW +B
VIDEO IN
AUDIO IN
GND
Q1 2SC2480
Q51 2SC3357
Q52 2SC3357
D1 HSM276
D51 RLS73
D52 HSK110
D53 HSK110
D54 HSK110
D55 HSK110
IC1
SW1 MODE SW
SW2 TSG SW
ON
OFF
X1 KBR 500AHK
VR1 1K
L1
L2
L3
L4
L51
L52
L53
L54
L56
L57
L58
T1
T2
T3
T4
T6
R15 110
R14 2.7K
R13 1.8K
R16 1K~OPEN (15K)
R17 33~OPEN (OPEN)
R18 10~180 (82)
R19 10~330 (82)
R59 10~470 (220)
R75 2.7K
R74 820
R72 560
R70 470
R71 820
R69 330~680 (680)
R68 330~820 (330)
R65 0~47 (12)
R66 100
R64 1K
R62 15
R61 470
R63 150~560 (150)
R57 100~OPEN (220)
R60 0~47 (27)
R54 150~560 (240)
R53 1.2K
R52 15
R51 560
R12 3.9K
R11 2.7K~4.7K (3.3K)
R10 2.7K~4.7K (3.9K)
R9 10K
R8 0~100K (68K)
R7 1K~OPEN
R5 0~10K
R6 0~10K
R4 56K
R3 82K
R2 1.2K
C1 0~2200P (1000P)
C2 0~2200P (1000P)
C3 12~33P (22P)
C4 1000P
C5 1
C6 1000P
C7 0.1
C8 100P
C9 33~150P (47P)
C10 10P
C11 1
C12 1000P
C12 0~4700P (1000P)
C13 0~180P (100)
C14 0~180P (120P)
C15 2.5P
C16 8~12P (10P)
C17 150P
C18 150P
C19 1P
C20 5P
C22 0~1 (1)
C23 0~2200P (1000P)
C51 33~100P (47P)
C52 100P
C53 0~5P (1.5P)
C54 1000P
C55 0~18P (10P)
C56 0~5P (0)
C57 0~OPEN (2.5P)
C58 0~5P (4P)
C59 1000P
C60 1000P
C61 0~18P (12P)
C62 1000P
C63 1000P
C64 0~100P (39P)
C65 47P~180P (120P)
C67 0~4700P (1000P)
C68 0~4700P (1000P)
C69 0~4700P (1000P)
C70 0~4700P (1000P)
C71 0~4700P (1000P)
C72 0~4700P (1000P)
C73 0~4700P (1000P)
C74 0~4700P (1000P)
C75 0~4700P (1000P)
C76 1000P
C77 0
1
2
3
4
5
6
7
8
9
10
11
12

4.30 REMOTE CONTROL SCHEMATIC DIAGRAM

Notes:

1. All parts slown in this schematic are critical for safety.
2. This schematic is only for reference.
   Avoid replacing individual parts.
   Replace the entrie unit only.



REMOTE CONTROL
IC1
KOUT1
KOUT0
KIN 3
KIN 2
KIN 1
KIN 0
KIN 4
JSCEN
JP 2
JP 1
JSON
TV
BCODE
OPT
KOUT2
KOUT3
KOUT4
KOUT5
KOUT6
KOUT7
NC
RMO
TEST
Vcc
CL 1
CL 2
Vss
RESET
D3,D4 M1MA151WKT1
D3
D4
D5,D6 M1MA151KT1
D5
D6
JOG
1
3
C1
2
C2
J2
J1
SW1
SW2
A
B
VTR
TV
TP1
TP2
TP3
TP4
TP5
TP6
TP7
TP8
TP9
TP10
TP11
TP12
TP13
Q1 MSD1328ST1
Q2 UN211FTW
Q3 2SD601TW
D1 LN66A
D2 LN1861CTRS
R1 1.0
R2 470
R3 4.7K
R4 1M
R5 180
R6 12K
R7 100K
C1
C2 0.047
C3 100P
C4 100P
C5 0.0039
X1

KEY No.	KEY NAME
1	3
2	5
3	1
4	2
5	6
6	8
7	4
8	TV/VIDEO
9	9
10	0
11	7
12	POWER
13	CH/SET −
14	CH/SET +
15	TV VOL +
16	TV VOL −
17	MENU
18	SELECT
19	C MEMORY/ADD
20	ENTER
21	SP/EP
22	V SEARCH ≫
23	V SEARCH ≪
24	TIMER
25	CANCEL/C RESET
26	SKIP/BLANK
28	DISPLAY
29	▮▮ PAUSE/STILL
31	JOG/SHUTTLE
33	● REC
35	◁◁ REW
37	▷ PLAY
39	▷▷ F.F
41	■ STOP

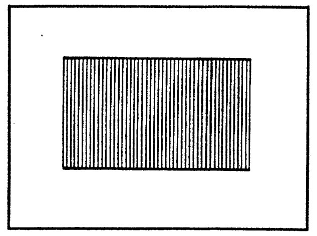
5 4 3 2 1

A B C D E F G H

4.31 WAVEFORMS

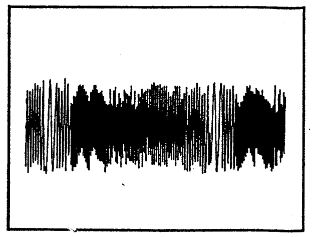
—AUDIO—

WF1 TP33



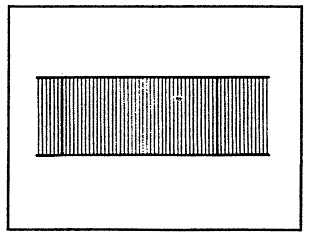
REC 40 Vp-p

WF2 TP53



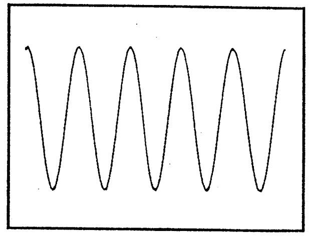
PB 1 Vp-p

WF3 REC FM



REC 0.38 Vp-p

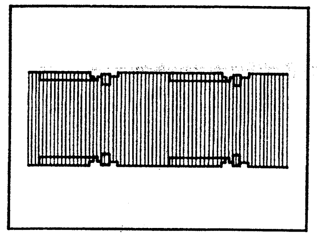
WF4 AUDIO OUT



REC 2.8 Vp-p

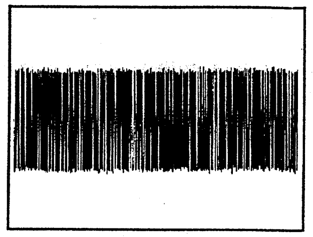
—VIDEO—

WF1 REC FM



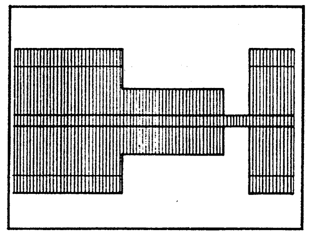
REC 0.7 Vp-p

WF2 PB FM



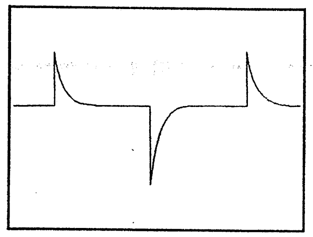
PB 0.4 Vp-p

WF3 REC COLOR



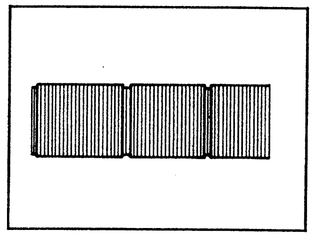
REC 0.2 Vp-p

WF4 TP244



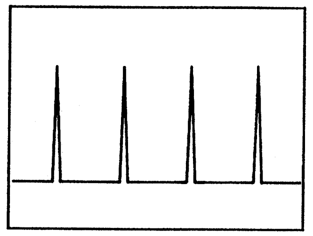
REC 2.0 Vp-p

WF5 PB COLOR



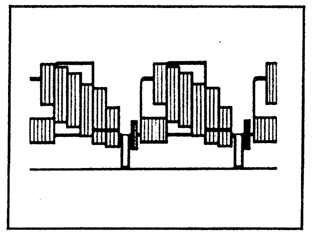
PB 0.5 Vp-p

WF6 TP212



REC/PB 2 Vp-p

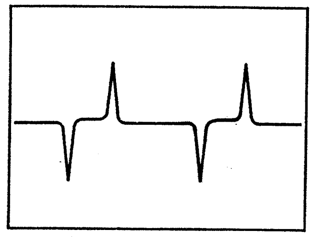
WF7 VIDEO IN



REC 2.0 Vp-p

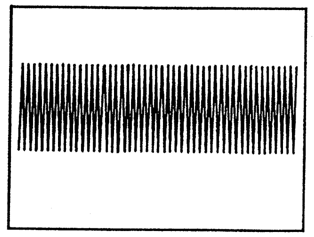
—SERVO—

WF1 TP401



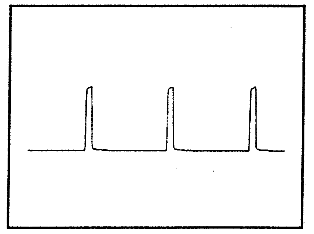
PB 3.0 Vp-p

WF2 CAP FG



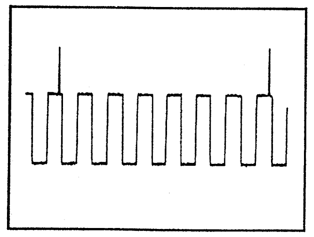
REC/PB 3.0 Vp-p

WF3 C. SYNC



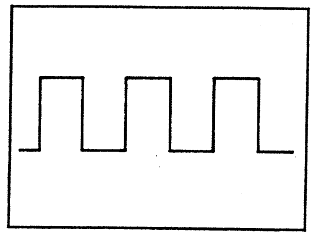
REC 4.0 Vp-p

WF4 DRUM FG/PG



REC/PB 4.2 Vp-p

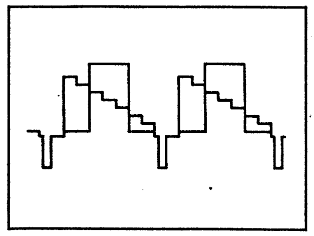
WF5 TP411



REC/PB 5 Vp-p

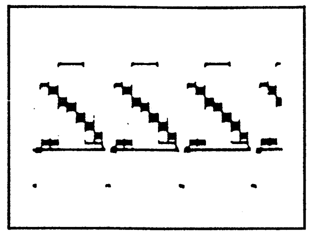
—VIDEO UNIT—

WF1



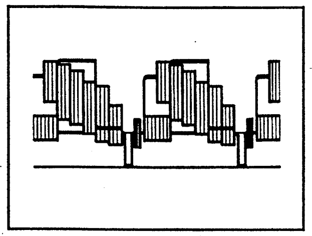
REC 0.5 Vp-p

WF2



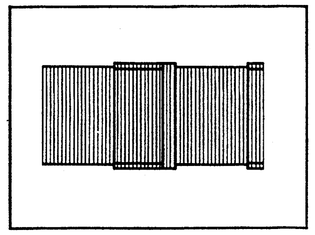
PB 0.13 Vp-p

WF3



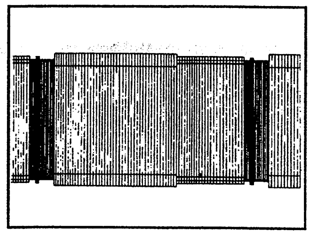
REC 1.1 Vp-p

WF3



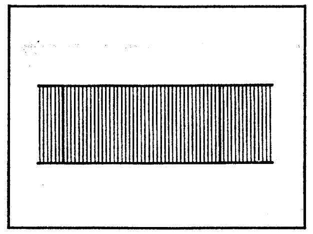
PB 1.0 Vp-p

WF4 REC FM



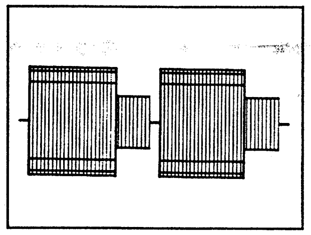
REC 1.4 Vp-p

WF5 PB FM



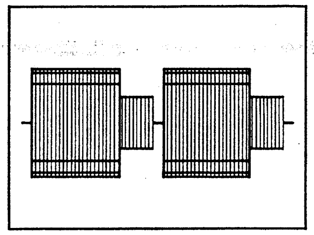
PB 0.34 Vp-p

WF6 REC COLOR



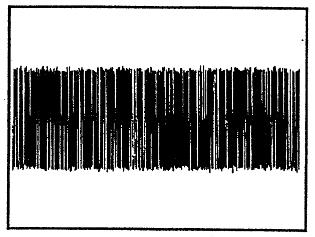
REC 0.4 Vp-p

WF7 PB COLOR



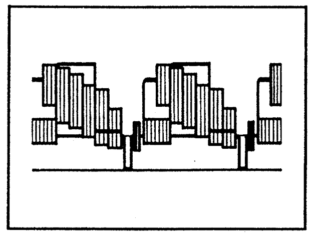
PB 0.12 Vp-p

WF8



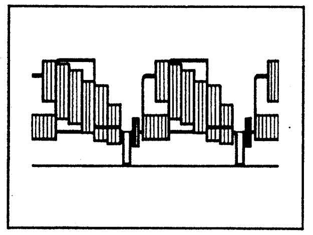
REC 0.02 Vp-p

WF9 VIDEO IN



REC 1.0 Vp-p

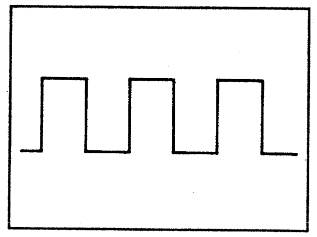
WF10 VIDEO OUT



REC/PB 2.3 Vp-p

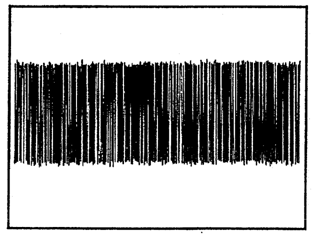
—PRE/REC—

WF1 TP511



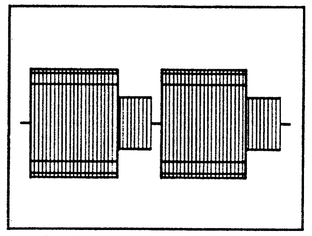
REC/PB 6.0 Vp-p

WF2 PB FM



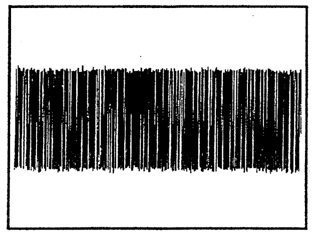
PB 0.5 Vp-p

WF3 REC COLOR



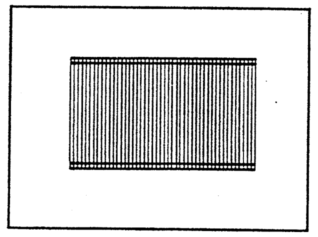
REC 0.2 Vp-p

WF4 PB FM



PB 0.4 Vp-p

WF5 REC FM



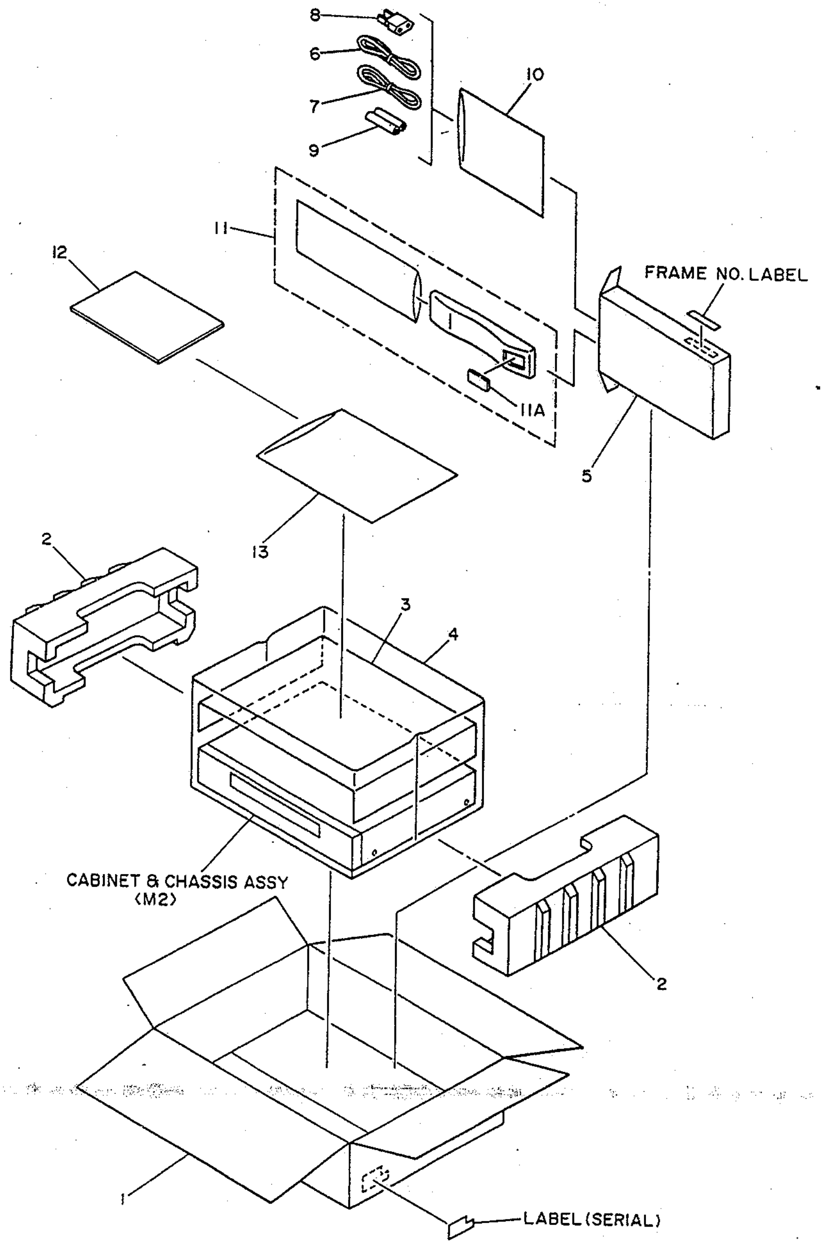
REC 0.7 Vp-p

SECTION 5
PARTS LIST

SAFETY PRECAUTION

Parts identified by the ⚠ symbol are critical for safety. Replace only with specified part numbers.

5.1 PACKING AND ACCESSORY ASSEMBLY <M1>



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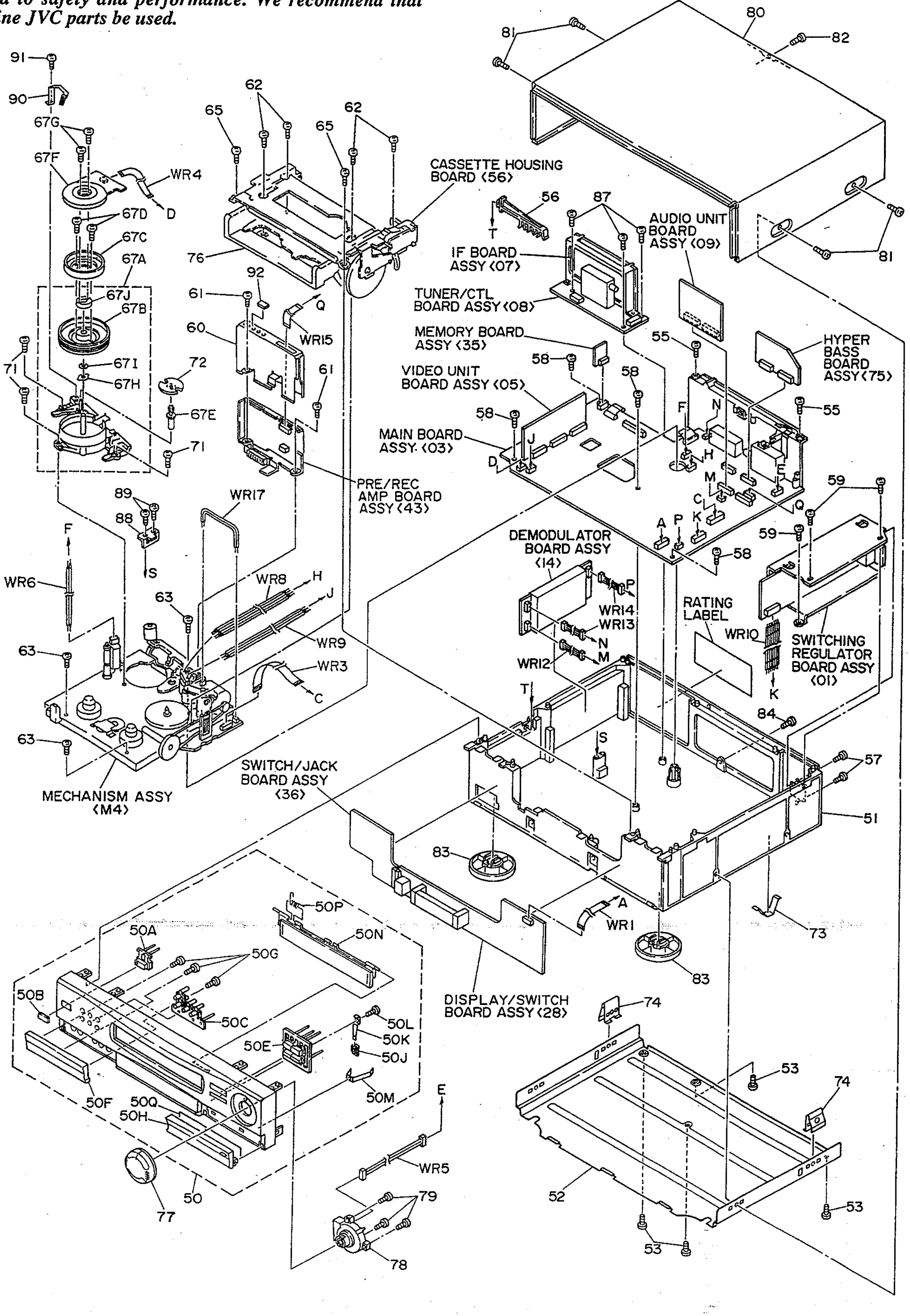
PACKING AND ACCESSORY ASSEMBLY <M1>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	1	PQ34868-4	PACKING CASE
	2	PQ34775A	CUSHION ASSY
	3	PQ34189-7	SHEET
	4	PQM30021-59-11	POLY BAG
	5	PQ34715-3	CASE(ACCESSORY)
⚠	6	PU59168-3	RF CABLE
⚠	7	QMP40E0-183	POWER CORD,HR-J67MS
⚠		QMP73F0-183	POWER CORD,HR-J67MS/S
⚠	8	PEMC1012	CONVERSION PLUG,HR-J67MS/S
⚠		PEMC1012-02	CONVERSION PLUG,HR-J67MS
	9	UM-3DJ2P	BATTERY,X2
	10	QPGA020-02005	POLY BAG
⚠	11	PQ11374E	REMOTE CONTROLLER
	11A	PQ34388	CAP(BATTERY)
⚠	12	PU30425-1412	INSTRUCTIONS
	13	QPGA025-03505	POLY BAG

5.2 CABINET AND CHASSIS ASSEMBLY <M2>

BEWARE OF BOGUS PARTS

Parts that do not meet specifications may cause trouble in regard to safety and performance. We recommend that genuine JVC parts be used.



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90
67G
67F
WR4
D
67D
67C
67A
67J
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67H
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67E
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71
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76
92
61
Q
WR15
60
61
CASSETTE HOUSING
BOARD (56)
56
T
87
AUDIO UNIT
BOARD
ASSY (09)
IF BOARD
ASSY (07)
TUNER/CTL
BOARD ASSY (08)
MEMORY BOARD
ASSY (35)
VIDEO UNIT
BOARD ASSY (05)
58
58
58
55
55
HYPER
BASS
BOARD
ASSY (75)
MAIN BOARD
ASSY (03)
D
J
F
N
H
M
C
K
E
Q
A
P
PRE/REC
AMP BOARD
ASSY (43)
80
81
82
81
89
88
F
S
WR17
WR6
WR8
H
J
WR9
WR3
C
63
63
63
MECHANISM ASSY
(M4)
SWITCH/JACK
BOARD ASSY
(36)
DEMODULATOR
BOARD ASSY
(14)
P
WR14
WR13
N
M
WR12
T
S
RATING
LABEL
WR10
K
59
59
58
SWITCHING
REGULATOR
BOARD ASSY
(01)
84
57
51
83
A
WR1
83
73
50P
50N
50A
50G
50B
50C
50E
50L
50K
50J
50M
50F
50Q
50H
50
77
DISPLAY/SWITCH
BOARD ASSY (28)
74
74
53
53
53
52
E
WR5
79
78

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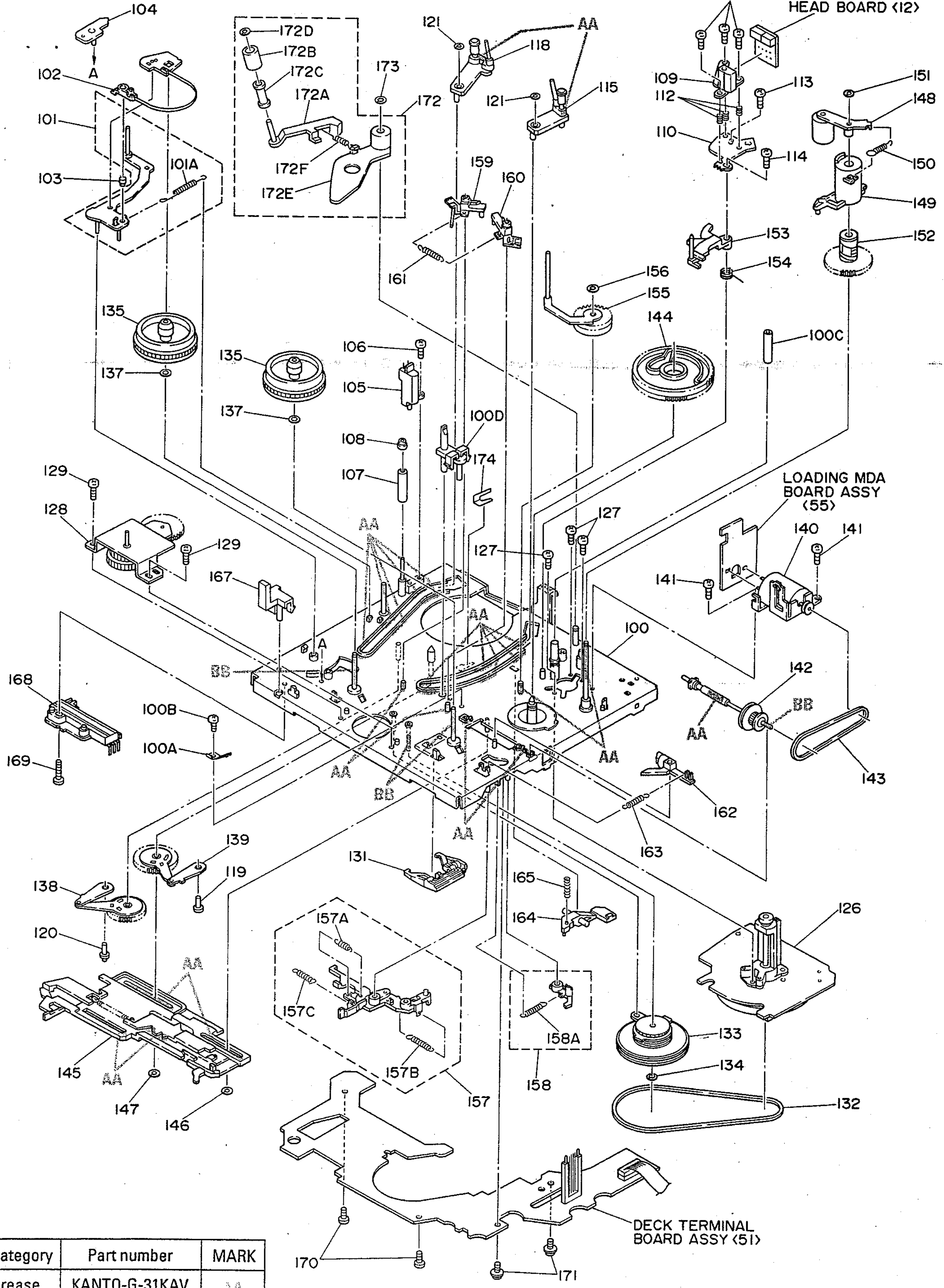
CABINET AND CHASSIS ASSEMBLY <M2>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	50	PQ11531H-7	FRONT PANEL ASSY
	50A	PQ34725-6	BUTTON(POWER)
	50B	PQ46050	INDICATOR
	50C	PQ21549-2	BUTTON(1)
	50E	PQ21559-5	BUTTON(OPE)
	50F	PQ21584-2	COVER
	50G	SDSF2008Z	SCREW,X3
	50H	PQ21548-6	DOOR(R)
	50J	PQ46167	SPRING(2)
	50K	PQ46166-1-2	SPRING(1)
	50L	SDSF2005Z	SCREW
	50M	PQ34736	EARTH PLATE
	50N	PQ21560-7	CASSETTE DOOR
	50P	PQ45704	TORSION SPRING
	50Q	PQ34735-4	PLATE(DOOR R)
⚠	51	PQ11548-1-5	BOTTOM CHASSIS
⚠	52	PQ11556-1-2	BOTTOM COVER
	53	SDSF3010Z	SCREW,X4 BOTTOM COVER
	55	SDSF3008Z	SCREW,X2 TERMINAL BOARD
	56	PQ34776	PWB HOLDER,VIDEO UNIT
	57	SDSF3010M	SCREW,X2 INLET
	58	SDSF3008Z	SCREW,X4 MAIN
	59	SDSF3008Z	SCREW,X3 SW REG
	60	PQ21513-1-1	SHIELD CASE(PRE)
	61	SDSG2606Z	SCREW,X2 PRE
	62	SDST2608Z	SCREW,X4 CASSETTE HOUSING
	63	PQ43831	SPECIAL SCREW,X3 MECHA
	65	SDSF3008Z	SCREW,X2 CASSETTE HOUSING
	67A	PDM2232N	DRUM SUB ASSEMBLY
	67B	PDM3353P	UPPER DRUM ASSEMBLY
	67C	PDZ0119-6	ROTOR ASSY
	67D	SPSH2660Z	SCREW,X2
	67E	PDM4311A-1	ROLLER ASSY
⚠	67F	PDZ0119-5	STATOR ASSEMBLY
	67G	SPSP2606Z	SCREW,X2
	67H	PDM4314A-2	BRUSH ASSEMBLY
	67I	PDM4050-9	WASHER
	67J	PDM4332A	COLLAR ASSEMBLY
	71	SPST2610Z	SCREW,X3 DRUM
	72	PQ44230	INERTIA PLATE
	73	PQ34737	EARTH PLATE,REC
	74	PQ46135	EARTH PLATE,X2 TOP BOTTOM
	76	PUS29672A	CASSETTE HOUSING ASSY
	77	PQ34862E-2	KNOB(SHUTTLE)ASSY
	78	PEME0913	SHUTTLE ASSY
	79	SDSF2610Z	SCREW,X3 SHUTTLE
⚠	80	PQ11550-3	TOP COVER
	81	PQ43827	SPECIAL SCREW,X4 TOP COVER
	82	SDSF3010M	SCREW,TOP COVER
	83	PQ46094A	FOOT ASSEMBLY,X2
	84	SDSF3010M	SCREW,TERMINAL BOARD
	87	SDSF3008Z	SCREW,X3 TUNER
	88	PQ46100	BRACKET,MECHA
	89	SDSF3008Z	SCREW,X2 BRACKET
	90	PDM3370	EARTH PLATE,DRUM
	91	SPSG2606Z	SCREW,EARTH PLATE
	92	QPM30029-27	SPACER,PRE/REC SHIELD
	WR1	PW30802-0918	FFC WIRE,CN602-M
	WR3	PW30802-1626	FFC WIRE,CN601-M
	WR4	PW30803-0444	FFC WIRE,CN402-N
	WR5	PW30218-0444014	WIRE,CN603-M
	WR6	PW30701-28AAYY	WIRE,CN2-M
	WR8	PW30705-14AAYY	WIRE,CN1-M
	WR9	PW30702-50AAYY	WIRE,CN401-M
	WR10	PW30604-09922	WIRE,CN802-M
	WR12	PW30218-0494013	WIRE,CN3-M
	WR13	PW30218-0473413	WIRE,CN604-M
	WR14	PW30218-0336614	WIRE,CN803-M
	WR15	PW30101-N0HH886	WIRE,CN4-M
	WR17	PW30101-A0HH884	WIRE,CN1-MDA

5.3 MECHANISM ASSEMBLY <M4>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103
101A
172D
172B
172C
172A
172F
172E
173
172
121
AA
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111
AUDIO/CONTROL HEAD BOARD <12>
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112
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148
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100C
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100D
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174
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129
LOADING MDA BOARD ASSY <55>
127
127
140
141
141
167
AA
A
BB
100
168
100B
100A
169
142
BB
AA
143
162
163
139
131
119
138
165
120
126
157A
164
157C
158A
133
AA
145
AA
147
146
157B
157
158
134
132
DECK TERMINAL BOARD ASSY <51>
170
171

Category	Part number	MARK
Grease	KANTO-G-31KAV	AA
Oil	COSMO-HV56	BB

NOTE: The section marked in AA and BB indicate lubrication and greasing areas.

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MECHANISM ASSEMBLY <M4>

#△ REF No.	PART No.	PART NAME, DESCRIPTION
100	PQ20753J-19	MAIN DECK ASSEMBLY
100A	PQ43849	EARTH PLATE
100B	SPST2604Z	SCREW
100C	PQ43675-2	TAPE GUARD
100D	PQ21546	LED PRISM
101	PQ43497J	TENSION ARM ASSY
101A	PQ43500	TENSION SPRING
102	PQ43501B-12	TENSION BAND ASSY
103	PQ43503-1-4	ADJUST PIN
104	PQ44246	T.BAND BKT-3
105	PEHE0237	FULL ERASE HEAD
106	SDSF2614Z	SCREW,F E HEAD
107	PQ43505-1-1	ROLLER
108	PQ43506	GUIDE POLE CAP
109	PEHE0247	AC HEAD
110	PQ43509	HEAD BASE
111	PQ43687A	SPECIAL SCREW,X3
112	PQM30002-192	COMPRESSION SPRING,X3
113	SPSF2608M	SCREW
114	SPSP2606Z	SCREW
115	PU61103-2-7	POLE BASE ASSY(TAKE UP)
118	PU61151-2-6	POLE BASE ASSY(SUPPLY)
119	PQ45895	STOPPER(T)
120	PQ45894	STOPPER(S)
121	PQM30017-41	SLIT WASHER,X2
△ 126	PU61285	CAPSTAN MOTOR
127	SPSG2608Z	SCREW,X3
128	PU60618-1-3	IDLER GEAR UNIT
129	SPST2606Z	SCREW,X2
131	PQ43532B	CHANGE LEVER ASSY
132	PQM30003-24	BELT
133	PU60953-1-6	CLUTCH UNIT
134	PQM30017-8	SLIT WASHER
135	PQ46072A	REEL DISK ASSY,X2
137	PQM30018-54	SPACER,X2
138	PQ43537B	LOADING ARM ASSY (SUPLLY)
139	PQ43542D-4	LOADING ARM AY (TAKE-UP)
140	PQ43676B-5	MODE MOTOR ASSY
141	SPSP3003Z	SCREW,X2
142	PQ43548A-2	WORM CLUTH ASSY
143	PQM30003-23	BELT
144	PQ32413-1-6	CONTROL CAM
145	PQ43555C-10	PLATE ASSY
146	PQM30017-12	SLIT WASHER
147	PQM30017-8	SLIT WASHER
148	PQ43558E	PINCH ROLLER ARM ASSY
149	PQ32415	PINCH ROLLER PRESS LEVER
150	PQM30001-233	TENSION SPRING
151	PQM30017-12	SLIT WASHER
152	PQ32416-2	PINCH ROLLER CAM
153	PQ43567A-13	GUIDE ARM ASSY
154	PQ43569-1-3	TORSION SPRING
155	PQ43570B	HALE LOADING GEAR ASSY
156	PQM30017-12	SLIT WASHER
157	PQ43575A-5	CANCEL LEVER ASSY
157A	PQM30001-273	TENSION SPRING
157B	PQM30001-237	TENSION SPRING
157C	PQM30001-274	TENSION SPRING
158	PQ43578A-2	HOOK ASSY
158A	PQM30001-238	TENSION SPRING
159	PQ43580D	MAIN BRAKE ASSY (SUPPLY)
160	PQ43582C	MAIN BRAKE ASSY (TAKE UP)
161	PQM30001-251	TENSION SPRING
162	PQ43583A-3	SUB BRAKE ASSY (TAKE UP)
163	PQM30001-235	TENSION SPRING
164	PQ43584A-5	CAPSTAN BRAKE ASSY
165	PQM30002-201	COMPRESSION SPRING
167	PU60624-1-4	REC SAFETY SWITCH
168	PU60622-1-2	SLIDE SWITCH
169	SDSF2614Z	SCREW
170	SDST2616Z	SCREW,X2
171	GPSF2608Z	SCREW,X2
172	PQ46016B-2	CLEANER ASSY
172A	PQ34678	CLEANER BASE
172B	PQ46019	CLEANER
172C	PQ46018	CLEANER ROLLER
172D	PQM30017-38	SLIT WASHER
172E	PQ34677-1-2	CLEANER LEVER
172F	PQ46155-1-2	TORSION SPRING
173	PQM30017-32	SLIT WASHER
174	PQ46173	LOADING GUIDE 3

5.4 ELECTRICAL PARTS LIST

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SWITCHING REGULATOR BOARD ASSY <01>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	PWBA1	PB20633A-02	SWITCH REGULATOR BOARD ASSY	
	Q1	2SK2043-CB14	FE TRANSISTOR	
	Q2	2SC3616(LK)	TRANSISTOR	
	Q31	2SC1740S(RS)	TRANSISTOR	
	D1	10E6-F2	DIODE	
	D2	10E6-F2	DIODE	
	D3	10E6-F2	DIODE	
	D4	10E6-F2	DIODE	
	D5	AU01	FR DIODE	
	D6	AU01	FR DIODE	
	D7	1SS133	DIODE	
	D8	RD27ES-T1B2	DIODE	
	D9	1SS133	DIODE	
	D10	RD6.2ES-T1B1	ZENER DIODE	
	D31	1SR153-400-T2	FR DIODE	
	D32	AU01Z	FR DIODE	
	D34	FML-12S	FR DIODE	
	D36	FMB-24	BARRIER DIODE	
	D37	AU01Z	FR DIODE	
	D38	RD5.6ES-T1B2	ZENER DIODE	
	D39	MTZ30AT-77	ZENER DIODE	
	D40	RD36ES-T1B2	ZENER DIODE	
	R2	QRD161J-334	RESISTOR	330KΩ,1/6W
	R3	QRD161J-334	RESISTOR	330KΩ,1/6W
	R4	QRG029J-104G	OMF RESISTOR	100KΩ,2W
	R5	QRD161J-102	RESISTOR	1KΩ,1/6W
	R6	QRD161J-333	RESISTOR	33KΩ,1/6W
	R7	QRX014J-R33Z	MF RESISTOR	0.33Ω,1W
	R8	QRG029J-201G	OMF RESISTOR	200Ω,2W
	R9	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R11	QRD161J-222	RESISTOR	2.2KΩ,1/6W
	R12	QRD161J-102	RESISTOR	1KΩ,1/6W
	R13	QRD161J-184	RESISTOR	180KΩ,1/6W
	R15	QRG029J-104G	OMF RESISTOR	100KΩ,2W
	R31	QRX014J-4R7Z	MF RESISTOR	4.7Ω,1W
	R32	QRG02DJ-222X	OMF RESISTOR	2.2KΩ,2W
⚠	R33	QRZ0077-470X	FUSIBLE RESISTOR	47Ω,1/4W
	R34	QRD161J-561	RESISTOR	560Ω,1/6W
	R35	QRD161J-561	RESISTOR	560Ω,1/6W
	R36	QRD161J-101	RESISTOR	100Ω,1/6W
	R37	QRD161J-222	RESISTOR	2.2KΩ,1/6W
⚠	C1	QFZ9022-223	F CAPACITOR	0.022μF
⚠	C7	QCZ9026-102	CAPACITOR	0.001μF
⚠	C8	QCZ9016-101K	CAPACITOR	100pF
⚠	C9	QCZ9016-101K	CAPACITOR	100pF
	C10	PECA0793-826	E CAPACITOR	82μF,400V
	C12	QETC1HM-225	E CAPACITOR	2.2μF,50V
	C13	QCZ0212-472	CAPACITOR	0.0047μF,1KV
	C14	QCZ0136-101Z	CAPACITOR	100pF
	C15	QFV11HJ-683	F CAPACITOR	0.068μF,50V
	C16	QFLA1HJ-822Z	M CAPACITOR	0.0082μF,50V
	C17	QCBB1HJ-101	CAPACITOR	100pF,50V
	C19	QCBB1HJ-471	CAPACITOR	470pF,50V
	C22	QCZ9026-101	CAPACITOR	100pF
	C31	QEGB1AM-107	E CAPACITOR	100μF,10V
	C32	QETC1JM-226	E CAPACITOR	22μF,63V
	C33	QFLA1HJ-103Z	M CAPACITOR	0.01μF,50V
	C36	QEGB1CM-687	E CAPACITOR	680μF,16V
	C37	QETB1CM-108	E CAPACITOR	1000μF,16V
	C38	QEGB1AM-108	E CAPACITOR	1000μF,10V
	C39	QETB1AM-108	E CAPACITOR	1000μF,10V
	C40	QETC1HM-226	E CAPACITOR	22μF,50V
	C41	QFV11HJ-334	F CAPACITOR	0.33μF,50V
	C42	QFN31HJ-103	M CAPACITOR	0.01μF,50V
	C44	QEGB1AM-107	E CAPACITOR	100μF,10V
	L32	PELN0628-330KZ	COIL	33μH
	L33	PELN0628-330KZ	COIL	33μH
⚠	PC1	PS2561L-1(WL)	PH COUPLER	
⚠	T1	PELN0890	SW TRANS	
⚠	AO1	PEMC0973-03	AC INLET	
⚠	BKT1	PQ21566-1-1	TRANS BRACKET	
⚠	FC1	PEMC0965-Z	FUSE CLIP,FOR F1	
⚠	FC2	PEMC0965-Z	FUSE CLIP,FOR F1	
⚠	HS1	PQ44610-1-2	HEAT SINK,FOR Q1	
⚠	HS2	PQ46005	HEAT SINK(1)FOR D34,D36	
⚠	LF1	PU59707	LINE FILTER	
	SCW1	SDST3006Z	SCREW,X3 T BOARD-T BRACKET	
	SCW2	SDSG3008Z	SCREW,HEAT SINK	
	SCW3	SDSG3006Z	SCREW,HEAT SINK	
	SCW4	SDSG3008Z	SCREW,X2 HEAT SINK(1)	
	SCW5	SDSG3006Z	SCREW,HEAT SINK(1)	
	CN1	PU60910-109	CONNECTOR,(2-10) MAIN	
⚠	F1	QMF51E2-1R6	FUSE	T1.6A

* * *

MAIN BOARD ASSEMBLY <03>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	PWBA1	PB10735D1-02	MAIN BOARD ASSY	
⚠	RF1	PERF0152	RF CONVERTER	
⚠	TB1	PQ11571-4	TERMINAL BOARD	
	CL1	PU56729-2	WIRE CLAMP,X2	
	ETH1	PQ46115	EARTH PLATE,TERMINAL BOARD	
	ETH2	PQ46116	EARTH PLATE,TERMINAL BOARD	
	SCW1	SDST2605Z	SCREW,RF CONVERTER	
	SCW2	SDSF3008Z	SCREW,TERMINAL BOARD	
	SPC1	PU60010-2	SPACER	
	WR1	PW30401-BB20T	COAXIAL CORD,CONV-TU	

– AUDIO SECTION –

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	IC1	XRA7795LS	IC	
		or BA7795LS	IC	
	Q1	2SC4081(QR)	TRANSISTOR	
	Q2	2SA933S(QR)	TRANSISTOR	
	Q5	2SA933S(QR)	TRANSISTOR	
	Q7	DTC114EU	TRANSISTOR	
	R1	QRSA08J-100YN	RESISTOR	10Ω,1/10W
	R2	QRSA08J-393YN	RESISTOR	39KΩ,1/10W
	R3	QRSA08J-682YN	RESISTOR	6.8KΩ,1/10W
	R4	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
	R5	QRSA08J-123YN	RESISTOR	12KΩ,1/10W
	R6	QRSA08J-3R3YN	RESISTOR	3.3Ω,1/10W
	R7	QRSA08J-473YN	RESISTOR	47KΩ,1/10W
	R8	QRSA08J-183YN	RESISTOR	18KΩ,1/10W
	R13	QRSA08J-473YN	RESISTOR	47KΩ,1/10W

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	R14	QRSA08J-273YN	RESISTOR	27KΩ,1/10W
	R16	QRSA08J-223YN	RESISTOR	22KΩ,1/10W
	R17	QRSA08J-820YN	RESISTOR	82Ω,1/10W
	R18	QRSA08J-274YN	RESISTOR	270KΩ,1/10W
	R19	QRSA08J-822YN	RESISTOR	8.2KΩ,1/10W
	R20	QRSA08J-682YN	RESISTOR	6.8KΩ,1/10W
	R21	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R22	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R23	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	R24	QRSA08J-183YN	RESISTOR	18KΩ,1/10W
	R25	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	R26	QRSA08J-153YN	RESISTOR	15KΩ,1/10W
	R27	QRSA08J-153YN	RESISTOR	15KΩ,1/10W
	R30	QRSA08J-333YN	RESISTOR	33KΩ,1/10W
	R31	QRSA08J-473YN	RESISTOR	47KΩ,1/10W
	R32	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	R34	QRSA08J-122YN	RESISTOR	1.2KΩ,1/10W
	R35	QRSA08J-393YN	RESISTOR	39KΩ,1/10W
	R36	QRSA08J-681YN	RESISTOR	680Ω,1/10W
	R37	QRSA08J-153YN	RESISTOR	15KΩ,1/10W
	R38	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	R39	QRSA08J-121YN	RESISTOR	120Ω,1/10W
	R41	QRSA08J-331YN	RESISTOR	330Ω,1/10W
	R42	QRSA08J-473YN	RESISTOR	47KΩ,1/10W
	R54	QRSA08J-393YN	RESISTOR	39KΩ,1/10W
	R55	QRSA08J-183YN	RESISTOR	18KΩ,1/10W
	R56	QRSA08J-393YN	RESISTOR	39KΩ,1/10W
	R57	QRSA08J-183YN	RESISTOR	18KΩ,1/10W
	R58	QRSA08J-332YN	RESISTOR	3.3KΩ,1/10W
	R59	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
	R63	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	R68	QRSA08J-104YN	RESISTOR	100KΩ,1/10W
	R69	QRSA08J-104YN	RESISTOR	100KΩ,1/10W
	R70	QRSA08J-221YN	RESISTOR	220Ω,1/10W
	R71	QRSA08J-221YN	RESISTOR	220Ω,1/10W
⚠	R72	QRSA08J-221YN	RESISTOR	220Ω,1/10W
⚠	R73	QRSA08J-121YN	RESISTOR	120Ω,1/10W
	C1	QCYA1HK-331	CAPACITOR	330pF,50V
	C2	QFLC1HJ-823Z	M CAPACITOR	0.082μF,50V
	C3	QETF1CM-106	E CAPACITOR	10μF,16V
	C4	QCYA1HK-472	CAPACITOR	0.0047μF,50V
	C5	QCYA1HK-223	CAPACITOR	0.022μF,50V
	C10	PU60550-475	E CAPACITOR	4.7μF
	C11	QCYA1HK-681	CAPACITOR	680pF,50V
	C12	QEKF1AM-226	E CAPACITOR	22μF,10V
	C13	QCYA1HK-123	CAPACITOR	0.012μF,50V
	C15	QCC11EJ-393	CAPACITOR	0.039μF,25V
	C17	QEKF1HM-104	E CAPACITOR	0.1μF,50V
	C18	QETF1HM-104	E CAPACITOR	0.1μF,50V
	C20	QCYA1HK-222	CAPACITOR	0.0022μF,50V
	C21	QETF1CM-476	E CAPACITOR	47μF,16V
	C22	QETF1CM-106	E CAPACITOR	10μF,16V
	C23	QCC11EJ-562	CAPACITOR	0.0056μF,25V
	C24	QETF1HM-105	E CAPACITOR	1μF,50V
	C26	QCC11EJ-822	CAPACITOR	0.0082μF,25V
	C27	QCC11EJ-223	CAPACITOR	0.022μF,25V
	C29	QETC1CM-106	E CAPACITOR	10μF,16V
	C30	QETC1CM-106	E CAPACITOR	10μF,16V
	C32	QEK41CM-106	E CAPACITOR	10μF,16V
	C38	QETF1CM-106	E CAPACITOR	10μF,16V
	C39	QETF1CM-106	E CAPACITOR	10μF,16V
	C40	QETC1CM-106	E CAPACITOR	10μF,16V

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	C41	QETC1CM-106	E CAPACITOR	10μF,16V
	L2	PU58308-123J	COIL	12mH
	L3	PELN0530-101JZ	COIL	100μH
⚠	T1	PELN0832	OSC TRANSFORMER	
	J4	PW30603-04424	RIBBON WIRE,(1-4)	
	J5	PW30603-03338	WIRE,(1-3)	
	J6	PW30603-09914	WIRE,(1-9)	
	CN1	PU60910-4	CONNECTOR,(1-4) A/C HEAD	
	CN2	PU60910-2	CONNECTOR,(1-2) FE HEAD	
	CN3	PU59555-4	CONNECTOR,(1-4) DEMOD	
	CN4	PU60910-6	CONNECTOR,(1-6) PRE/REC	
	CN6	PEMC0714-009	CONNECTOR,(10-18) HYPER BASS	
	CN7	PEMC0714-006	CONNECTOR,(2-7) HYPER BASS	

– VIDEO SECTION –

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	IC201	BA7106LS	IC	
		or XRA7106LS	IC	
	IC202	NJM2234S	IC	
		or LVA522SA	IC	
		or LVA522S	IC	
	IC203	BA7045	IC	
	IC204	M50253P	IC	
	Q201	2SC4081(RS)	TRANSISTOR	
	Q202	2SC4081(RS)	TRANSISTOR	
	Q205	2SC4081(RS)	TRANSISTOR	
	Q207	2SA1576(RS)	TRANSISTOR	
	Q208	2SC4081(RS)	TRANSISTOR	
	Q209	2SA933S(RS)	TRANSISTOR	
		or 2SA1267(YG)-TJK	TRANSISTOR	
	Q210	2SA933S(RS)	TRANSISTOR	
		or 2SA1267(YG)-TJK	TRANSISTOR	
	Q211	2SC1740S(RS)	TRANSISTOR	
		or 2SC3199(GB)	TRANSISTOR	
		or 2SC3311A(RS)	TRANSISTOR	
		or 2SC536SPA(FG)	TRANSISTOR	
	Q212	DTA144WU	TRANSISTOR	
	Q213	2SC4081(RS)	TRANSISTOR	
	Q218	DTA114WU	TRANSISTOR	
	D201	1SS133	DIODE	
	D204	1SS133	DIODE	
	D205	1SS133	DIODE	
	D207	1SS133	DIODE	
	R201	QRSA08J-562YN	RESISTOR	5.6KΩ,1/10W
	R202	QRSA08J-363YN	RESISTOR	36KΩ,1/10W
	R203	QRSA08J-562YN	RESISTOR	5.6KΩ,1/10W
	R204	QRSA08J-914YN	RESISTOR	910KΩ,1/10W
	R205	QRSA08J-821YN	RESISTOR	820Ω,1/10W
	R206	QRSA08J-471YN	RESISTOR	470Ω,1/10W
	R207	QRSA08J-104YN	RESISTOR	100KΩ,1/10W
	R208	QRSA08J-333YN	RESISTOR	33KΩ,1/10W
	R209	QRSA08J-273YN	RESISTOR	27KΩ,1/10W
	R210	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R211	QRSA08J-271YN	RESISTOR	270Ω,1/10W
	R212	QRSA08J-271YN	RESISTOR	270Ω,1/10W
	R213	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R214	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R215	QRSA08J-271YN	RESISTOR	270Ω,1/10W
	R217	QRSA08J-363YN	RESISTOR	36KΩ,1/10W
	R220	QRSA08J-101YN	RESISTOR	100Ω,1/10W
	R221	QRSA08J-511YN	RESISTOR	510Ω,1/10W
	R222	QRSA08J-102YN	RESISTOR	1KΩ,1/10W

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	R432	QRD161J-822	RESISTOR	8.2KΩ,1/6W
	R433	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	R436	QRD161J-102	RESISTOR	1KΩ,1/6W
	R438	QRSA08J-104YN	RESISTOR	100KΩ,1/10W
	R441	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R442	QRSA08J-104YN	RESISTOR	100KΩ,1/10W
	R443	QRSA08J-563YN	RESISTOR	56KΩ,1/10W
	C401	QCYA1HK-102	CAPACITOR	0.001µF,50V
	C402	QERF1AM-226	E CAPACITOR	22µF,10V
	C403	QERF1AM-226	E CAPACITOR	22µF,10V
	C404	QCSA1HJ-181	CAPACITOR	180pF,50V
	C405	QCYA1HK-102	CAPACITOR	0.001µF,50V
	C407	QCYA1HK-102	CAPACITOR	0.001µF,50V
	C408	PECA0780-563Z	M CAPACITOR	0.056µF,50V
	C409	QCYA1HK-102	CAPACITOR	0.001µF,50V
	C410	QCYA1EK-103	CAPACITOR	0.01µF,25V
	C411	QCVB1CN-103	CAPACITOR	0.01µF,16V
	C412	QERF1CM-106	E CAPACITOR	10µF,16V
	C413	QFV11HJ-224	F CAPACITOR	0.22µF,50V
	C414	QCYA1EK-223	CAPACITOR	0.022µF,25V
	C415	QERF1EM-475	E CAPACITOR	4.7µF,25V
	C416	QERF1EM-475	E CAPACITOR	4.7µF,25V
	C417	QERF1CM-106	E CAPACITOR	10µF,16V
	C418	QERF1CM-106	E CAPACITOR	10µF,16V
	C419	QCC31CK-473	CAPACITOR	0.047µF,16V
	C420	QFV11HJ-394	F CAPACITOR	0.39µF,50V
	C421	QCSA1HJ-471	CAPACITOR	470pF,50V
	C441	QERF1AM-226	E CAPACITOR	22µF,10V
	C442	QCYA1EK-103	CAPACITOR	0.01µF,25V
	C443	QCSA1HJ-220	CAPACITOR	22pF,50V
	C444	QCSA1HJ-470	CAPACITOR	47pF,50V
	C445	QCSA1HJ-390	CAPACITOR	39pF,50V
	C446	QCSA1HJ-101	CAPACITOR	100pF,50V
	C447	QERF1AM-226	E CAPACITOR	22µF,10V
	C448	QCVB1CN-103	CAPACITOR	0.01µF,16V
	C449	QCSA1HJ-101	CAPACITOR	100pF,50V
⚠	X441	PEVB0475	CRYSTAL RESONATOR	
	CN401	PU60910-3	CONNECTOR,(1-3) CTL HEAD	
	CN402	PEMC0915-004	FFC CONNECTOR,(1-4) DRUM MOTO	
⚠	CP401	ICP-F15	CIRCUIT PROTECTOR	

– SYSTEM CONTROL SECTION –

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	IC601	HD6433927A51F	QFP IC (MCU)	
	IC602	S-80728AN	IC	
		or RE5VA28A	IC	
	Q601	2SC4081(RS)	TRANSISTOR	
	Q602	DTC124EU	CHIP D TRANSISTOR	
	Q603	DTC143EU	TRANSISTOR	
	Q604	DTC124EU	CHIP D TRANSISTOR	
	Q606	DTC124EU	CHIP D TRANSISTOR	
	Q607	DTC124EU	CHIP D TRANSISTOR	
	Q608	DTC124EU	CHIP D TRANSISTOR	
	D601	11ES2	DIODE	
	D602	11ES2	DIODE	
	D603	1SS133	DIODE	
	D604	1SS133	DIODE	
	D605	1SS133	DIODE	
	D606	11ES2	DIODE	
	R601	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R602	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R603	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R604	QRSA08J-563YN	RESISTOR	56KΩ,1/10W
	R605	QRSA08J-333YN	RESISTOR	33KΩ,1/10W
	R606	QRSA08J-104YN	RESISTOR	100KΩ,1/10W
	R607	QRSA08J-105YN	RESISTOR	1MΩ,1/10W
	R608	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
	R609	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R610	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
	R611	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R612	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	R613	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	R614	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R615	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R616	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	R617	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R618	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R619	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R620	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R622	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R623	QRSA08J-471YN	RESISTOR	470Ω,1/10W
	R624	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R625	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R626	QRSA08J-681YN	RESISTOR	680Ω,1/10W
	R627	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R628	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R629	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R630	QRSA08J-681YN	RESISTOR	680Ω,1/10W
	R631	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R632	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R633	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R634	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R635	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R636	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R637	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R638	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R639	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R640	QRSA08J-221YN	RESISTOR	220Ω,1/10W
	R641	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R642	QRD161J-471	RESISTOR	470Ω,1/6W
	R643	QRSA08J-151YN	RESISTOR	150Ω,1/10W
	R644	QRD161J-102	RESISTOR	1KΩ,1/6W
	R645	QRD161J-102	RESISTOR	1KΩ,1/6W
	R646	QRSA08J-332YN	RESISTOR	3.3KΩ,1/10W
	R647	QRSA08J-332YN	RESISTOR	3.3KΩ,1/10W
	R648	QRSA08J-332YN	RESISTOR	3.3KΩ,1/10W
	R649	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R650	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R651	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R652	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R653	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R654	QRSA08J-272YN	RESISTOR	2.7KΩ,1/10W
	R655	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R656	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R657	QRSA08J-471YN	RESISTOR	470Ω,1/10W
	R658	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R659	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R660	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R661	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R662	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R663	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	R664	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R665	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R666	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	R667	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
	R668	QRD161J-103	RESISTOR	10KΩ,1/6W
	R669	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
	R670	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
	R671	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
	R672	QRD161J-471	RESISTOR	470Ω,1/6W
	R673	QRD161J-333	RESISTOR	33KΩ,1/6W
	R674	QRD161J-183	RESISTOR	18KΩ,1/6W
	R675	QRD161J-103	RESISTOR	10KΩ,1/6W
	R676	QRD161J-103	RESISTOR	10KΩ,1/6W
	R677	QRD161J-103	RESISTOR	10KΩ,1/6W
	R678	QRD161J-333	RESISTOR	33KΩ,1/6W
	R679	QRD161J-153	RESISTOR	15KΩ,1/6W
	R680	QRSA08J-333YN	RESISTOR	33KΩ,1/10W
	R681	QRSA08J-473YN	RESISTOR	47KΩ,1/10W
	R684	QRD161J-103	RESISTOR	10KΩ,1/6W
	R685	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
	R686	QRD161J-103	RESISTOR	10KΩ,1/6W
	R687	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R688	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
	R689	QRSA08J-471YN	RESISTOR	470Ω,1/10W
	R690	QRSA08J-471YN	RESISTOR	470Ω,1/10W
	R697	QRD161J-104	RESISTOR	100KΩ,1/6W
	R699	QRD161J-104	RESISTOR	100KΩ,1/6W
	C603	QCFA1HZ-103	CAPACITOR	0.01μF,50V
	C604	QEKF1CM-106	E CAPACITOR	10μF,16V
	C605	QEK41CM-106	E CAPACITOR	10μF,16V
	C606	PECA0813-223Z	E CAPACITOR	
	C607	QCFA1HZ-103	CAPACITOR	0.01μF,50V
	C609	QEKF0JM-107	E CAPACITOR	100μF,6.3V
	C610	QCC11CJ-104	CAPACITOR	0.1μF,16V
	C613	QCSA1HJ-270	CAPACITOR	27pF,50V
	C614	QAT3120-450Z	TRIM CAPACITOR,CLOCK ADJ	
	C616	QCSA1HJ-470	CAPACITOR	47pF,50V
	C624	QCYA1HK-471	CAPACITOR	470pF,50V
	L601	PU48530-1R0K	COIL	1μH
⚠	CF601	PEVB0497	RESONATOR	
⚠	X601	PEVB0422	CRYSTAL RESONATOR	
	CN601	PEMC0916-016	FFC CONNECTOR,(1-16) DECK TER	
	CN602	PEMC0916-009	FFC CONNECTOR,(1-9) DISPLAY	
	CN603	PU59555-4	CONNECTOR,(1-4) SHUTTLE	
	CN604	PU59555-4	CONNECTOR,(1-4) DEMOD	
	CN605	PEMC0846-006	B TO B CONNECTOR,(2-7) TU CTL	
	CN606	PEMC0846-010	B TO B CONNECTOR,(1-10) TU CT	
	CN607	PEMC0714-005	CONNECTOR,(1-5) MEMORY	
⚠	CP601	ICP-F25	CIRCUIT PROTECTOR	

- TERMINAL SECTION -

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	Q702	2SB810HJ-T	TRANSISTOR	
	D701	1SS133	DIODE	
	D702	1SS133	DIODE	
	D703	1SS133	DIODE	
	D704	1SS133	DIODE	
	D705	1SS133	DIODE	
	D706	1SS133	DIODE	
	D707	1SS133	DIODE	
	R701	QRSA08J-750YN	RESISTOR	75Ω,1/10W
	L701	PU59152-100J	COIL	10μH
	J702	PU60612	EARPHONE JACK	
	J703	PEMC0760-04	PIN JACK, VIDEO	
	J704	PEMC1027-02	PIN JACK, AUDIO(L)	
	J705	PEMC1027	PIN JACK, AUDIO(R)	
	R703	QRD161J-393	RESISTOR	39kΩ,1/6W
	R704	QRD161J-102	RESISTOR	1kΩ,1/6W
	C702	QEK61CM-476	E. CAPACITOR	47μF,16V
	L702	PU48530-101J	COIL	100μH

- REGULATOR SECTION -

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	Q801	2SD2375(QP)	TRANSISTOR	
	Q802	2SD2375(QP)	TRANSISTOR	
	Q803	2SB1068(KU)	TRANSISTOR	
	Q804	2SC3616(MLK)	TRANSISTOR	
	D801	RD13ES-T1B2	ZENER DIODE	
	D802	HZ15CP	ZENER DIODE	
	D803	RD6.2ES-T1B1	ZENER DIODE	
	D804	11ES2	DIODE	
	D811	11ES2	DIODE	
	D813	11ES2	DIODE	
	R801	QRD161J-222	RESISTOR	2.2KΩ,1/6W
	R803	QRD161J-221	RESISTOR	220Ω,1/6W
	R804	QRD161J-101	RESISTOR	100Ω,1/6W
	R805	QRD161J-103	RESISTOR	10KΩ,1/6W
⚠	R806	QRG02DJ-102X	OMF RESISTOR	1KΩ,2W
	R807	QRD161J-102	RESISTOR	1KΩ,1/6W
	R808	QRD161J-331	RESISTOR	330Ω,1/6W
	C803	QETC1AM-226	E CAPACITOR	22μF,10V
	C804	QETA0JM-107	E CAPACITOR	100μF,6.3V
	C805	QETF1CM-226	E CAPACITOR	22μF,16V
	C806	QETC1CM-107	E CAPACITOR	100μF,16V
	C807	QETA1CM-107	E CAPACITOR	100μF,16V
	C808	QETF1CM-106	E CAPACITOR	10μF,16V
	C809	QETC1AM-107	E CAPACITOR	100μF,10V
	C815	QCBB1HJ-102	CAPACITOR	0.001μF,50V
	C816	QCBB1HJ-102	CAPACITOR	0.001μF,50V
	J801	PW30219-06608	WIRE,(1-6)	
	J802	PW30219-02228	WIRE,(2-3)	
	CN802	PU60910-9	WIRE TRAP,(2-10) SW REG	
	CN803	PU59555-3	CONNECTOR,(1-3) DEMOD	
⚠	CP801	ICP-N20	CIRCUIT PROTECTOR	
⚠	CP802	ICP-N15	CIRCUIT PROTECTOR	

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VIDEO UNIT BOARD ASSEMBLY <05>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	PWBA1	PB10761C	VIDEO UNIT BOARD ASSEMBLY
	IC1	TL8839P	IC
	IC2	JCP0035	IC
	Q1	2SA1576(QRS)	TRANSISTOR
	Q2	2SC4081(QRS)	TRANSISTOR
	Q3	2SA1576(QRS)	TRANSISTOR
	Q4	2SC4081(QRS)	TRANSISTOR
	Q5	2SC4081(QRS)	TRANSISTOR
	Q6	2SC4081(QRS)	TRANSISTOR
	Q7	2SC4081(QRS)	TRANSISTOR
	Q8	DTC114WU	TRANSISTOR
	Q9	2SC4081(QRS)	TRANSISTOR
	Q10	2SA1576(QRS)	TRANSISTOR
	Q11	DTC144WU	TRANSISTOR
	Q12	DTC144WU	TRANSISTOR
	Q13	DTA124EU	TRANSISTOR
	Q14	2SA1576(QRS)	TRANSISTOR
	Q101	2SC4081(QRS)	TRANSISTOR
	Q103	2SC4081(QRS)	TRANSISTOR
	Q104	2SC3936(BC)	TRANSISTOR

#△ REF No.	PART No.	PART NAME, DESCRIPTION
Q105	DTC144WU	TRANSISTOR
Q106	2SC3936(BC)	TRANSISTOR
Q107	2SC3936(BC)	TRANSISTOR
Q108	2SC4081(QRS)	TRANSISTOR
Q109	DTA144WU	TRANSISTOR
Q110	2SC3936(BC)	TRANSISTOR
Q111	2SC3936(BC)	TRANSISTOR
Q112	2SC4081(QRS)	TRANSISTOR
Q114	DTC144WU	TRANSISTOR
Q115	DTA124EU	TRANSISTOR
D1	DAN202U	DIODE
D2	DAN202U	DIODE
D3	DAP202U	DIODE
D5	1SS133	DIODE
D7	1SS292	DIODE
D101	DAN202U	DIODE
R1	NRSA63J-681N	RESISTOR 680Ω,1/16W
R2	NRSA63J-475N	RESISTOR 4.7MΩ,1/16W
R3	NRSA63J-361N	RESISTOR 360Ω,1/16W
R4	NRSA63J-103N	RESISTOR 10KΩ,1/16W
R5	NRSA63J-102N	RESISTOR 1KΩ,1/16W
R6	NRSA63J-475N	RESISTOR 4.7MΩ,1/16W
R7	NRSA63J-681N	RESISTOR 680Ω,1/16W
R9	NRSA63J-102N	RESISTOR 1KΩ,1/16W
R10	NRSA63J-621N	RESISTOR 620Ω,1/16W
R11	NRSA63J-331N	RESISTOR 330Ω,1/16W
R12	NRSA63J-182N	RESISTOR 1.8KΩ,1/16W
R13	NRSA63J-222N	RESISTOR 2.2KΩ,1/16W
R14	NRSA63J-102N	RESISTOR 1KΩ,1/16W
R15	NRSA63J-221N	RESISTOR 220Ω,1/16W
R16	NRSA63J-332N	RESISTOR 3.3KΩ,1/16W
R17	NRSA63J-392N	RESISTOR 3.9KΩ,1/16W
R18	NVP1301-152NZ	V.RESISTOR,NC BALANCE
R19	NRSA63J-222N	RESISTOR 2.2KΩ,1/16W
R20	NRSA63J-681N	RESISTOR 680Ω,1/16W
R21	NRSA63J-102N	RESISTOR 1KΩ,1/16W
R22	NRSA63J-122N	RESISTOR 1.2KΩ,1/16W
R23	NRSA63J-272N	RESISTOR 2.7KΩ,1/16W
R24	NRSA63J-821N	RESISTOR 820Ω,1/16W
R25	NVP1301-472N	V.RESISTOR,PB Y LEVEL
R26	NRSA63J-333N	RESISTOR 33KΩ,1/16W
R27	NRSA63J-561N	RESISTOR 560Ω,1/16W
R28	NVP1301-223N	V.RESISTOR,CARRIER
R29	NVP1301-103N	V.RESISTOR,DEVIATION
R30	NRSA63J-432N	RESISTOR 4.3KΩ,1/16W
R31	NRSA63J-122N	RESISTOR 1.2KΩ,1/16W
R32	NRSA63J-562N	RESISTOR 5.6KΩ,1/16W
R33	NRSA63J-561N	RESISTOR 560Ω,1/16W
R34	NRSA63J-102N	RESISTOR 1KΩ,1/16W
R36	NRSA63J-103N	RESISTOR 10KΩ,1/16W
R38	NRSA63J-103N	RESISTOR 10KΩ,1/16W
R39	NRSA63J-102N	RESISTOR 1KΩ,1/16W
R40	NRSA63J-102N	RESISTOR 1KΩ,1/16W
R41	NRSA63J-102N	RESISTOR 1KΩ,1/16W
R42	NVP1301-153N	V. RESISTOR,EE Y LEVEL
R43	NRSA63J-823N	RESISTOR 82KΩ,1/16W
R44	NRSA63J-334N	RESISTOR 330KΩ,1/16W
R45	NVP1301-103N	V.RESISTOR,W/D CLIP
R46	NRSA63J-103N	RESISTOR 10KΩ,1/16W
R47	NRSA63J-434N	RESISTOR 430KΩ,1/16W
R49	NRSA63J-105N	RESISTOR 1MΩ,1/16W
R50	NRSA63J-331N	RESISTOR 330Ω,1/16W

#△ REF No.	PART No.	PART NAME, DESCRIPTION
R51	NRSA63J-102N	RESISTOR 1KΩ,1/16W
R52	NVP1301-222N	V.RESISTOR,REC COLOR LEVEL
R53	NRSA63J-102N	RESISTOR 1KΩ,1/16W
R54	NRSA63J-271N	RESISTOR 270Ω,1/16W
R55	NRSA63J-681N	RESISTOR 680Ω,1/16W
R56	NRSA63J-561N	RESISTOR 560Ω,1/16W
R57	NRSA63J-102N	RESISTOR 1KΩ,1/16W
R58	NRSA63J-102N	RESISTOR 1KΩ,1/16W
R61	NRSA63J-102N	RESISTOR 1KΩ,1/16W
R62	NRSA63J-101N	RESISTOR 100Ω,1/16W
R101	NRSA63J-223N	RESISTOR 22KΩ,1/16W
R103	NRSA63J-333N	RESISTOR 33KΩ,1/16W
R104	NRSA63J-562N	RESISTOR 5.6KΩ,1/16W
R105	NRSA63J-562N	RESISTOR 5.6KΩ,1/16W
R106	NRSA63J-0R0N	RESISTOR 0Ω,1/16W
R107	NRSA63J-473N	RESISTOR 47KΩ,1/16W
R108	NRSA63J-223N	RESISTOR 22KΩ,1/16W
R109	NRSA63J-223N	RESISTOR 22KΩ,1/16W
R110	NRSA63J-561N	RESISTOR 560Ω,1/16W
R111	NRSA63J-473N	RESISTOR 47KΩ,1/16W
R112	NRSA63J-103N	RESISTOR 10KΩ,1/16W
R113	NRSA63J-473N	RESISTOR 47KΩ,1/16W
R114	NRSA63J-333N	RESISTOR 33KΩ,1/16W
R115	NRSA63J-472N	RESISTOR 4.7KΩ,1/16W
R116	NRSA63J-152N	RESISTOR 1.5KΩ,1/16W
R117	NRSA63J-272N	RESISTOR 2.7KΩ,1/16W
R118	NRSA63G-821N	RESISTOR 820Ω,1/16W
R119	NRSA63J-472N	RESISTOR 4.7KΩ,1/16W
R120	NRSA63J-682N	RESISTOR 6.8KΩ,1/16W
R121	NRSA63J-102N	RESISTOR 1KΩ,1/16W
R122	NRSA63J-912N	RESISTOR 9.1KΩ,1/16W
R123	NRSA63J-392N	RESISTOR 3.9KΩ,1/16W
R124	NRSA63J-331N	RESISTOR 330Ω,1/16W
R125	NRSA63G-821N	RESISTOR 820Ω,1/16W
R127	NRSA63J-333N	RESISTOR 33KΩ,1/16W
R128	NRSA63J-333N	RESISTOR 33KΩ,1/16W
R129	NRSA63J-102N	RESISTOR 1KΩ,1/16W
R130	NRSA63J-102N	RESISTOR 1KΩ,1/16W
R133	NRSA63J-562N	RESISTOR 5.6KΩ,1/16W
R136	QRD161J-333	RESISTOR 33KΩ,1/6W
C1	NCS31HJ-221A	CAPACITOR 220pF,50V
C2	NCS31HG-561A	CAPACITOR 560pF,50V
C3	NCS31HG-361A	CAPACITOR 360pF,50V
C4	NCS31HJ-220A	CAPACITOR 22pF,50V
C5	NCF31HZ-103A	CAPACITOR 0.01μF,50V
C6	NCS31HJ-150A	CAPACITOR 15pF,50V
C7	NCS31HJ-220A	CAPACITOR 22pF,50V
C8	NCS31HJ-680A	CAPACITOR 68pF,50V
C9	NCS31HG-121A	CAPACITOR 120pF,50V
C10	NCF31HZ-103A	CAPACITOR 0.01μF,50V
C11	QCFA1HZ-473	CAPACITOR 0.047μF,50V
C12	QETC1HM-474	E CAPACITOR 0.47μF,50V
C13	NCF31HZ-103A	CAPACITOR 0.01μF,50V
C14	QCFA1HZ-104	CAPACITOR 0.1μF,50V
C15	NCF31CZ-104A	CAPACITOR 0.1μF,16V
C16	NCS31HJ-390A	CAPACITOR 39pF,50V
C17	NCS31HJ-180A	CAPACITOR 18pF,50V
C18	NCS31HJ-220A	CAPACITOR 22pF,50V
C19	QETC0JM-476	E CAPACITOR 47μF,6.3V
C20	NCF31HZ-103A	CAPACITOR 0.01μF,50V
C21	NCS31HJ-330A	CAPACITOR 33pF,50V
C22	QETC1HM-474	E CAPACITOR 0.47μF,50V

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	C23	QETC1HM-474	E CAPACITOR	0.47μF,50V
	C24	QETC1EM-475	E CAPACITOR	4.7μF,25V
	C25	QETC1CM-106	E CAPACITOR	10μF,16V
	C26	QETC1AM-226	E CAPACITOR	22μF,10V
	C27	QETC1CM-106	E CAPACITOR	10μF,16V
	C28	QETC0JM-107	E CAPACITOR	100μF,6.3V
	C29	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C30	NCF31HZ-103A	CAPACITOR	0.01μF,50V
	C31	NCF31HZ-103A	CAPACITOR	0.01μF,50V
	C32	QETC1HM-225	E CAPACITOR	2.2μF,50V
	C33	QETC1HM-474	E CAPACITOR	0.47μF,50V
	C34	NCS31HJ-620A	CAPACITOR	62pF,50V
	C35	NCS31HG-201A	CAPACITOR	200pF,50V
	C36	QETC1EM-475	E CAPACITOR	4.7μF,25V
	C37	NCB31EK-223A	CAPACITOR	0.022μF,25V
	C40	QETC1HM-105	E CAPACITOR	1μF,50V
	C41	NCB31EK-223A	CAPACITOR	0.022μF,25V
	C42	NCS31HJ-101A	CAPACITOR	100pF,50V
	C43	NCS31HJ-390A	CAPACITOR	39pF,50V
	C44	QENC1EM-475	NP E CAPACITOR	4.7μF,25V
	C45	QETC1EM-475	E CAPACITOR	4.7μF,25V
	C46	NCF31CZ-473A	CAPACITOR	0.047μF,16V
	C47	QETC1HM-104	E CAPACITOR	0.1μF,50V
	C48	QETC1HM-474	E CAPACITOR	0.47μF,50V
	C49	NCB31CK-333A	CAPACITOR	0.033μF,16V
	C50	NCF31HZ-103A	CAPACITOR	0.01μF,50V
	C51	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C52	NCF31HZ-103A	CAPACITOR	0.01μF,50V
	C53	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C54	NCB31CK-473A	CAPACITOR	0.047μF,16V
	C55	QETC1EM-475	E CAPACITOR	4.7μF,25V
	C56	NCS31HJ-5R0A	CAPACITOR	5pF,50V
	C57	QETC1HM-105	E CAPACITOR	1μF,50V
	C58	NCF31HZ-103A	CAPACITOR	0.01μF,50V
	C59	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C60	QETC0JM-107	E CAPACITOR	100μF,6.3V
	C61	NCB31HK-103A	CAPACITOR	0.01μF,50V
	C62	NCB31HK-272A	CAPACITOR	0.0027μF,50V
	C69	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C101	NCF31HZ-103A	CAPACITOR	0.01μF,50V
	C104	NCS31HJ-390A	CAPACITOR	39pF,50V
	C105	NCS31HG-130A	CAPACITOR	13pF,50V
	C106	NCS31HJ-560A	CAPACITOR	56pF,50V
	C107	NCS31HJ-5R0A	CAPACITOR	5pF,50V
	C108	NCS31HJ-120A	CAPACITOR	12pF,50V
	C109	NCS31HJ-680A	CAPACITOR	68pF,50V
	C110	NCS31HJ-680A	CAPACITOR	68pF,50V
	C113	NCF31HZ-103A	CAPACITOR	0.01μF,50V
	C114	NCT08CH-220A	CAPACITOR	22pF,50V
	C115	NCT08CH-121A	CAPACITOR	120pF,50V
	C116	NCT08CH-330A	CAPACITOR	33pF,50V
	C117	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C118	NCT08CH-330A	CAPACITOR	33pF,50V
	C119	NCB31CK-473A	CAPACITOR	0.047μF,16V
	C120	NCF31HZ-103A	CAPACITOR	0.01μF,50V
	C121	QETC1EM-475	E CAPACITOR	4.7μF,25V
	C122	NCF31HZ-103A	CAPACITOR	0.01μF,50V
	C125	NCF31HZ-103A	CAPACITOR	0.01μF,50V
	L1	PU59988-121JY	COIL	120μH
	L2	PU59988-330J	COIL	33μH
	L3	PU59988-330J	COIL	33μH
	L4	PU59988-820J	COIL	82μH

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	L5	PU59988-221J	COIL	220μH
	L6	PU59153-101K	COIL	100μH
	L7	PU59988-680J	COIL	68μH
⚠	L8	PU48530-101K	COIL	100μH
	L9	PU59988-121JY	COIL	120μH
	L11	PU48530-561J	COIL	560μH
	L101	PU59988-820J	COIL	82μH
	LPF1	PELN0913	LOW PASS FILTER	
	LPF2	PELN0892	LOW PASS FILTER	
⚠	DL1	PU60874	1H DELAY LINE	
⚠	X101	PEVB0386	CRYSTAL RESONATOR	
⚠	X102	PEVB0438-02	CRYSTAL RESONATOR	
⚠	X103	PEVB0444	CRYSTAL RESONATOR	

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IF BOARD ASSEMBLY <07>

REF No.	PART No.	PART NAME, DESCRIPTION	
PWBA1	PB10746B1-01	IF BOARD ASSEMBLY	
IC1	LA7577V	IC	
IC2	TC4053BP	IC	
	or CD4053BE	IC	
IC3	BA10358	IC	
Q1	2SC2001(LK)	TRANSISTOR	
Q3	2SC3932(ST)	TRANSISTOR	
Q4	2SC4081(RS)	TRANSISTOR	
Q5	DTC144EU	TRANSISTOR	
Q6	DTC114YU	TRANSISTOR	
Q7	2SC3932(ST)	TRANSISTOR	
Q8	2SC4081(RS)	TRANSISTOR	
Q9	DTC144EU	TRANSISTOR	
Q10	DTC114YU	TRANSISTOR	
Q11	DTC114YU	TRANSISTOR	
Q12	DTC114YU	TRANSISTOR	
Q13	2SC4081(RS)	TRANSISTOR	
Q14	2SA1576(RS)	TRANSISTOR	
Q15	DTC114YU	TRANSISTOR	
Q16	FMS1	TRANSISTOR	
Q17	FMG2	TRANSISTOR	
Q18	2SC4081(RS)	TRANSISTOR	
Q19	2SA1576(RS)	TRANSISTOR	
Q20	2SC4081(RS)	TRANSISTOR	
Q22	DTC144EU	TRANSISTOR	
D1	MTZ11B	ZENER DIODE	
D2	SVC321SPA-B-1	V.DIODE	
D3	DAP202U	DIODE	
D4	IMN10	DIODE	
D5	1SS133	DIODE	
R1	NRSA63J-101N	RESISTOR	100Ω,1/16W
R2	QRSA08J-331YN	RESISTOR	330Ω,1/10W
R4	NRSA63J-272N	RESISTOR	2.7KΩ,1/16W
R5	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R6	NRSA63J-470N	RESISTOR	47Ω,1/16W
R7	NRSA63J-152N	RESISTOR	1.5KΩ,1/16W
R8	QRSA08J-221YN	RESISTOR	220Ω,1/10W
R10	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R11	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R12	NRSA63J-105N	RESISTOR	1MΩ,1/16W
R13	NRSA63J-272N	RESISTOR	2.7KΩ,1/16W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R14	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R15	NRSA63J-470N	RESISTOR	47Ω,1/16W
R16	NRSA63J-152N	RESISTOR	1.5KΩ,1/16W
R17	QRSA08J-221YN	RESISTOR	220Ω,1/10W
R18	NRSA63J-331N	RESISTOR	330Ω,1/16W
R19	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R20	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R21	NRSA63J-105N	RESISTOR	1MΩ,1/16W
R22	NRSA63J-561N	RESISTOR	560Ω,1/16W
R23	NRSA63J-105N	RESISTOR	1MΩ,1/16W
R25	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R26	NRSA63J-105N	RESISTOR	1MΩ,1/16W
R27	NRSA63J-104N	RESISTOR	100KΩ,1/16W
R28	NRSA63J-182N	RESISTOR	1.8KΩ,1/16W
R29	NRSA63J-822N	RESISTOR	8.2KΩ,1/16W
R30	QVPA606-103Z	V RESISTOR, RF AGC	
R31	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R32	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R33	NRSA63J-824N	RESISTOR	820KΩ,1/16W
R34	NRSA63J-104N	RESISTOR	100KΩ,1/16W
R35	NRSA63J-104N	RESISTOR	100KΩ,1/16W
R37	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R38	NRSA63J-151N	RESISTOR	150Ω,1/16W
R39	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R40	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R41	NRSA63J-271N	RESISTOR	270Ω,1/16W
R42	NRSA63J-471N	RESISTOR	470Ω,1/16W
R43	NRSA63J-181N	RESISTOR	180Ω,1/16W
R44	NRSA63J-122N	RESISTOR	1.2KΩ,1/16W
R45	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R46	NRSA63J-560N	RESISTOR	56Ω,1/16W
R47	NRSA63J-105N	RESISTOR	1MΩ,1/16W
R48	NRSA63J-560N	RESISTOR	56Ω,1/16W
R50	NRSA63J-221N	RESISTOR	220Ω,1/16W
R51	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R52	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R53	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R54	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R55	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R56	NRSA63J-221N	RESISTOR	220Ω,1/16W
R57	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R58	NRSA63J-183N	RESISTOR	18KΩ,1/16W
R59	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R61	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R62	NRSA63J-683N	RESISTOR	68KΩ,1/16W
R63	NRSA63J-331N	RESISTOR	330Ω,1/16W
R64	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R65	NRSA63J-182N	RESISTOR	1.8KΩ,1/16W
R66	NRSA63J-471N	RESISTOR	470Ω,1/16W
R67	NRSA63J-561N	RESISTOR	560Ω,1/16W
R68	NRSA63J-561N	RESISTOR	560Ω,1/16W
R69	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R70	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
R71	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R73	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R75	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
R77	QRD161J-222	RESISTOR	2.2KΩ,1/6W
R78	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R80	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R81	NRSA63J-104N	RESISTOR	100KΩ,1/16W
R82	NRSA63J-104N	RESISTOR	100KΩ,1/16W
R83	NRSA63J-103N	RESISTOR	10KΩ,1/16W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R84	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R85	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R86	NRSA63J-224N	RESISTOR	220KΩ,1/16W
R87	NRSA63J-104N	RESISTOR	100KΩ,1/16W
R88	NRSA63J-123N	RESISTOR	12KΩ,1/16W
R89	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R91	QRSA08J-821YN	RESISTOR	820Ω,1/10W
R92	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R93	NRSA63J-392N	RESISTOR	3.9KΩ,1/16W
R94	NRSA63J-391N	RESISTOR	390Ω,1/16W
R95	NRSA63J-103N	RESISTOR	10KΩ,1/16W
C2	QETF1CM-476	E CAPACITOR	47μF,16V
C5	NCB31HK-102A	CAPACITOR	0.001μF,50V
C7	NCB31HK-102A	CAPACITOR	0.001μF,50V
C8	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
C9	NCB31HK-102A	CAPACITOR	0.001μF,50V
C10	NCB31HK-102A	CAPACITOR	0.001μF,50V
C11	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
C13	NCB31HK-102A	CAPACITOR	0.001μF,50V
C14	NCB31HK-102A	CAPACITOR	0.001μF,50V
C15	NCB31HK-102A	CAPACITOR	0.001μF,50V
C16	QCBB1HK-102	CAPACITOR	0.001μF,50V
C17	NCB31HK-102A	CAPACITOR	0.001μF,50V
C18	NCB31HK-102A	CAPACITOR	0.001μF,50V
C19	NCB31HK-102A	CAPACITOR	0.001μF,50V
C20	NCB31HK-102A	CAPACITOR	0.001μF,50V
C21	NCB31HK-102A	CAPACITOR	0.001μF,50V
C22	NCB31HK-102A	CAPACITOR	0.001μF,50V
C25	QEKF1CM-106	E CAPACITOR	10μF,16V
C26	QFLC1HJ-103Z	M CAPACITOR	0.01μF,50V
C27	NCB31HK-103A	CAPACITOR	0.01μF,50V
C28	NCT06CH-680A	CAPACITOR	68pF,50V
C29	NCT06CH-680A	CAPACITOR	68pF,50V
C30	NCT06CH-680A	CAPACITOR	68pF,50V
C31	NCS31HJ-331A	CAPACITOR	330pF,50V
C32	QEKF1HM-224	E CAPACITOR	0.22μF,50V
C33	NCF31HZ-473A	CAPACITOR	0.047μF,50V
C34	NCB31HK-102A	CAPACITOR	0.001μF,50V
C35	NCB31HK-103A	CAPACITOR	0.01μF,50V
C36	QETF1CM-476	E CAPACITOR	47μF,16V
C37	NCB31HK-102A	CAPACITOR	0.001μF,50V
C38	NCT06CH-150A	CAPACITOR	15pF,50V
C39	QFLC1HJ-683Z	M CAPACITOR	0.068μF,50V
C40	NCB31HK-102A	CAPACITOR	0.001μF,50V
C41	QEKF1HM-474	E CAPACITOR	0.47μF,50V
C42	NCT06CH-180A	CAPACITOR	18pF,50V
C43	NCT06CH-101A	CAPACITOR	100pF,50V
C44	NCB31HK-103A	CAPACITOR	0.01μF,50V
C45	NCF31HZ-223A	CAPACITOR	0.022μF,50V
C51	NCB31HK-103A	CAPACITOR	0.01μF,50V
C52	NCT06CH-330A	CAPACITOR	33pF,50V
C53	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
C54	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
C55	NCT06CH-220A	CAPACITOR	22pF,50V
C56	NCB31HK-103A	CAPACITOR	0.01μF,50V
C57	NCB31HK-103A	CAPACITOR	0.01μF,50V
C58	NCT06CH-820A	CAPACITOR	82pF,50V
C59	NCF31HZ-223A	CAPACITOR	0.022μF,50V
C60	NCF31HZ-223A	CAPACITOR	0.022μF,50V
C61	NCF31HZ-223A	CAPACITOR	0.022μF,50V
C62	NCB31HK-222A	CAPACITOR	0.0022μF,50V
C63	QEKF1HM-474	E CAPACITOR	0.47μF,50V

#△	REF No.	PART No.	PART NAME, DESCRIPTION	
	C64	QEKF1CM-106	E CAPACITOR	10μF,16V
	C65	QEKF1HM-474	E CAPACITOR	0.47μF,50V
	C66	QEKF1CM-106	E CAPACITOR	10μF,16V
	C71	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C72	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C73	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C74	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C75	NCB31HK-103A	CAPACITOR	0.01μF,50V
	C84	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
	L1	PU60025-R82	COIL	0.82μH
	L2	PU60025-2R4	COIL	2.4μH
	L3	PU60025-2R4	COIL	2.4μH
	L4	PU60025-R91	COIL	0.91μH
	L5	PU59152-1R0J	COIL	1μH
	L6	PU59152-1R0J	COIL	1μH
	L7	PU59152-6R8J	COIL	6.8μH
	L8	PU59152-220J	COIL	22μH
	L9	PU59152-100J	COIL	10μH
	L10	PU59152-470J	COIL	47μH
	L11	PU59152-100J	COIL	10μH
	L12	PU59152-8R2J	COIL	8.2μH
	L13	PU59152-220J	COIL	22μH
	LPF1	PU60332	BAND PASS FILTER	
	LPF2	PU60464	BAND PASS FILTER	
	CF1	PU32990-2	CERAMIC FILTER	
	CF3	PU32990	CERAMIC FILTER	
	CF4	PU32990	CERAMIC FILTER	
	CF5	PEVB0339	C TRAP	
	CF6	PU49295-2	N FILTER	
	CF7	PU60774-3	CERAMIC FILTER	
	CF8	PU60774-4	CERAMIC FILTER	
	CF9	PU60774	CERAMIC FILTER	
	SAW1	PU60954-2	SAW FILTER	
	SAW2	PEVB0364	SAW FILTER	
	SAW3	PEVB0545	SAW FILTER	
	T1	PELN0669	IF.TRANSFORMER, FM DET	
	T2	PELN0443-02	IF.TRANSFORMER, AFC	
	T3	PELN0444-02	IF.TRANSFORMER, VCO	
	JP1	PEMC0742-008	B TO B CONNECTOR(1-8)TUNER CT	
	JP2	PEMC0742-006	B TO B CONNECTOR(1-6)TUNER CT	
	SCW1	SDST2605Z	SCREW,X2	
	SLD1	PQ21581	SHIELD FRAME	
	CN3	PU59555-103	CONNECTOR,(1-3) DEMOD	

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TUNER CONTROL BOARD ASSEMBLY <08>

#△	REF No.	PART No.	PART NAME, DESCRIPTION	
	PWBA2	PB10746B2-01	TUNER CONTROL BOARD ASSY	
△	TNR1	PERF0151	TUNER	
	IC101	AN1358	IC	
		or AN6562-SG	IC	
		or TA75358P	IC	
		or M5223P	IC	
	IC102	M50253P	IC	
	Q101	2SC4081(RS)	TRANSISTOR	
	Q102	DTA123YU	TRANSISTOR	
	Q103	DTA123YU	TRANSISTOR	
	Q104	DTA123YU	TRANSISTOR	
	Q105	2SB810H,J	TRANSISTOR	
	Q106	2SD1450S,T	TRANSISTOR	
	Q108	2SK381(C)	FE TRANSISTOR	
	Q109	2SC4081(RS)	TRANSISTOR	
	Q110	DTC144EU	TRANSISTOR	
	Q112	2SC4081(S)	TRANSISTOR	
	Q113	FMS2	TRANSISTOR	
	Q114	2SC4081(RS)	TRANSISTOR	
	D101	HZT31	ZENER DIODE	
	D102	DA204U	DIODE	
	R101	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R102	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R103	NRSA63J-331N	RESISTOR	330Ω,1/16W
	R104	NRSA63J-333N	RESISTOR	33KΩ,1/16W
	R105	NRSA63J-154N	RESISTOR	150KΩ,1/16W
	R106	NRSA63J-154N	RESISTOR	150KΩ,1/16W
	R107	QRSA08J-243YN	RESISTOR	24KΩ,1/10W
	R108	QRSA08J-243YN	RESISTOR	24KΩ,1/10W
	R109	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
	R111	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
	R113	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
	R115	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
	R117	NRSA63J-182N	RESISTOR	1.8KΩ,1/16W
	R118	QRSA08J-153YN	RESISTOR	15KΩ,1/10W
	R119	QRSA08J-331YN	RESISTOR	330Ω,1/10W
	R120	NRSA63J-683N	RESISTOR	68KΩ,1/16W
	R121	NRSA63J-473N	RESISTOR	47KΩ,1/16W
	R122	NRSA63J-473N	RESISTOR	47KΩ,1/16W
	R131	QRSA08J-391YN	RESISTOR	390Ω,1/10W
	R132	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R133	NRSA63J-105N	RESISTOR	1MΩ,1/16W
	R134	NRSA63J-683N	RESISTOR	68KΩ,1/16W
	R135	NRSA63J-333N	RESISTOR	33KΩ,1/16W
	R136	NRSA63J-821N	RESISTOR	820Ω,1/16W
	R141	NRSA63J-471N	RESISTOR	470Ω,1/16W
	R142	NRSA63J-104N	RESISTOR	100KΩ,1/16W
	R143	NRSA63J-153N	RESISTOR	15KΩ,1/16W
	R144	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R145	NRSA63J-392N	RESISTOR	3.9KΩ,1/16W
	R146	NRSA63J-471N	RESISTOR	470Ω,1/16W
	R147	NRSA63J-223N	RESISTOR	22KΩ,1/16W
	R148	NRSA63J-223N	RESISTOR	22KΩ,1/16W
	R149	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R150	NRSA63J-822N	RESISTOR	8.2KΩ,1/16W
	R154	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
	R160	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R161	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R162	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R163	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R164	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R171	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
	C101	NCB31HK-103A	CAPACITOR	0.01μF,50V
	C102	QFLC1HJ-333Z	M CAPACITOR	0.033μF,50V
	C103	QFLC1HJ-153Z	M CAPACITOR	0.015μF,50V
	C104	QETF1HM-106	E CAPACITOR	10μF,50V
	C105	QCTA1CH-470	CAPACITOR	47pF,16V
	C106	QETF1HM-106	E CAPACITOR	10μF,50V
	C107	QETF1CM-476	E CAPACITOR	47μF,16V
	C108	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C109	QETF1CM-476	E CAPACITOR	47μF,16V
	C110	QEKF1EM-475	E CAPACITOR	4.7μF,25V
	C112	QEKF1HM-224	E CAPACITOR	0.22μF,50V

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	C114	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C121	QEKF1HM-335	E CAPACITOR	3.3μF,50V
	C124	QCYA1HK-223	CAPACITOR	0.022μF,50V
	C125	QEKF1HM-474	E CAPACITOR	0.47μF,50V
	C131	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C141	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
	T101	PELN0806	COIL	
	CN1	PEMC0723-006	B TO B CONNECTOR,(1-7) MAIN	
	CN2	PEMC0723-010	B TO B CONNECTOR,(1-10) MAIN	

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AUDIO UNIT BOARD ASSEMBLY <09>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	PWBA	PB10764A-01	AUDIO UNIT BOARD ASSEMBLY	
	IC1	JCP0038	IC	
	Q3	DTC114WU	TRANSISTOR	
	Q4	DTC143EU	TRANSISTOR	
	Q5	DTC143EU	TRANSISTOR	
	Q6	DTC143EU	TRANSISTOR	
	Q7	DTC143EU	TRANSISTOR	
	Q8	DTC143EU	TRANSISTOR	
	Q9	DTC114WU	TRANSISTOR	
	R1	NRSA63J-475N	RESISTOR	4.7MΩ,1/16W
	R2	NRSA63J-511N	RESISTOR	510Ω,1/16W
	R3	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
	R4	NRSA63J-513N	RESISTOR	51KΩ,1/16W
	R5	NVP1301-333NU	V RESISTOR,L DEVIATION	
	R8	NRSA63J-822N	RESISTOR	8.2KΩ,1/16W
	R9	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R10	NRSA63J-123N	RESISTOR	12KΩ,1/16W
	R11	NVP1301-153NU	V RESISTOR,L CARRIER NTSC	
	R12	NRSA63J-105N	RESISTOR	1MΩ,1/16W
	R13	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R14	NRSA63J-183N	RESISTOR	18KΩ,1/16W
	R18	NRSA63J-303N	RESISTOR	30KΩ,1/16W
	R19	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
	R20	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
	R22	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R23	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R24	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R25	NVP1301-222NU	V RESISTOR,R CARRIER NTSC	
	R26	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R27	NRSA63J-822N	RESISTOR	8.2KΩ,1/16W
	R30	NVP1301-333NU	V RESISTOR,R DEVIATION	
	R31	NRSA63J-513N	RESISTOR	51KΩ,1/16W
	R32	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
	R33	NRSA63J-511N	RESISTOR	510Ω,1/16W
	R34	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
	R35	NRSA63J-514N	RESISTOR	510KΩ,1/16W
	R38	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	R41	NRSA63J-101N	RESISTOR	100Ω,1/16W
	R42	NRSA63J-101N	RESISTOR	100Ω,1/16W
	R49	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	R50	NRSA63J-473N	RESISTOR	47KΩ,1/16W
	R51	NRSA63J-473N	RESISTOR	47KΩ,1/16W
	R52	NRSA63J-104N	RESISTOR	100KΩ,1/16W
	R58	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
	R59	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	R60	NVP1301-153NU	V RESISTOR,FO R CARRIER PAL	
	R61	NVP1301-153NU	V RESISTOR,FO L CARRIER PAL	
	C2	QETC1AM-336	E CAPACITOR	33μF,10V
	C3	QFLC1HJ-473Z	M CAPACITOR	0.047μF,50V
	C4	QETC1HM-225	E CAPACITOR	2.2μF,50V
	C5	QFV21HJ-333	F CAPACITOR	0.033μF,50V
	C6	QETC1AM-476	E CAPACITOR	47μF,10V
	C7	QETC1CM-106	E CAPACITOR	10μF,16V
	C8	QFLC1HJ-103Z	M CAPACITOR	0.01μF,50V
	C9	QETC0JM-107	E CAPACITOR	100μF,6.3V
	C10	NCB31HK-102A	CAPACITOR	0.001μF,50V
	C11	PECA0780-104Z	M CAPACITOR	0.1μF
	C12	QFLC1HJ-223Z	M CAPACITOR	0.022μF,50V
	C13	NCB31HK-821A	CAPACITOR	820pF,50V
	C14	QFLC1HJ-392Z	M CAPACITOR	0.0039μF,50V
	C15	QFLC1HJ-333Z	M CAPACITOR	0.033μF,50V
	C16	QETC1HM-105	E CAPACITOR	1μF,50V
	C18	NCB31HK-561A	CAPACITOR	560pF,50V
	C20	NCS31HJ-101A	CAPACITOR	100pF,50V
	C21	NCS31HJ-101A	CAPACITOR	100pF,50V
	C22	QFLC1HJ-392Z	M CAPACITOR	0.0039μF,50V
	C23	NCB31HK-821A	CAPACITOR	820pF,50V
	C24	QFLC1HJ-223Z	M CAPACITOR	0.022μF,50V
	C25	PECA0780-104Z	M CAPACITOR	0.1μF
	C26	NCB31HK-102A	CAPACITOR	0.001μF,50V
	C27	QETC0JM-107	E CAPACITOR	100μF,6.3V
	C28	QFLC1HJ-103Z	M CAPACITOR	0.01μF,50V
	C29	QETC1CM-106	E CAPACITOR	10μF,16V
	C30	QETC1AM-476	E CAPACITOR	47μF,10V
	C31	QFLC1HJ-333Z	M CAPACITOR	0.033μF,50V
	C32	QETC1HM-225	E CAPACITOR	2.2μF,50V
	C33	QFLC1HJ-473Z	M CAPACITOR	0.047μF,50V
	C34	QETC1AM-336	E CAPACITOR	33μF,10V
	C36	QETC1CM-106	E CAPACITOR	10μF,16V
	C39	QETC1CM-106	E CAPACITOR	10μF,16V
	C40	QETC1HM-104	E CAPACITOR	0.1μF,50V
	C41	QETC0JM-107	E CAPACITOR	100μF,6.3V
	C42	QETC0JM-107	E CAPACITOR	100μF,6.3V
	C43	QETC1AM-107	E CAPACITOR	100μF,10V
	C44	QETC1CM-476	E CAPACITOR	47μF,16V
	C45	QETC1AM-476	E CAPACITOR	47μF,10V
	C46	QETC1CM-106	E CAPACITOR	10μF,16V
	C48	QETC1CM-106	E CAPACITOR	10μF,16V
	C49	QETC0JM-476	E CAPACITOR	47μF,6.3V
	C50	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C51	QFV21HJ-563	F CAPACITOR	0.056μF,50V
	C52	QFV21HJ-563	F CAPACITOR	0.056μF,50V
	C53	QETC1HM-225	E CAPACITOR	2.2μF,50V
	C56	QETC1HM-225	E CAPACITOR	2.2μF,50V
	C60	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C61	NCF31CZ-104A	CAPACITOR	0.1μF,16V
	C62	NCS31HJ-150A	CAPACITOR	15pF,50V
	C63	NCS31HJ-270A	CAPACITOR	27pF,50V
	C64	NCS31HJ-270A	CAPACITOR	27pF,50V
	C65	NCS31HJ-270A	CAPACITOR	27pF,50V
	C66	NCB31EK-103A	CAPACITOR	0.01μF,25V
	C67	NCB31EK-103A	CAPACITOR	0.01μF,25V
	L1	PELN0530-101JZ	COIL	100μH
	L2	PELN0530-101JZ	COIL	100μH
	L3	PELN0530-101JZ	COIL	100μH
	BPF1	PELN0679-S	BAND PASS FILTER	
	BPF2	PELN0680-S	BAND PASS FILTER	

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
JP1	PEMC0919-126	PIN HEADER
JP2	PEMC0919-126	PIN HEADER

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AUDIO/CONTROL HEAD BOARD ASSY <12>

PWBA	PB40069	AUDIO CONTROL HEAD BOARD
CN1	PU60910-107	WIRE TRAP

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DEMOD BOARD ASSEMBLY <14>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
PWBA1	PB10679D	DEMOD BOARD ASSEMBLY	
IC201	CF70088	IC	
IC202	SM5840EP	IC	
IC203	TDA1312	IC	
IC204	M5201L	IC	
IC205	M5201L	IC	
IC206	XRA15218	IC	
IC207	M5278L05	IC	
	or TA78L005AP	IC	
IC208	TDA8415	IC	
IC209	UPC1391H	IC	
IC210	TC7S04F	IC	
Q201	2SC4081(RS)	TRANSISTOR	
Q202	2SC3931(BC)	TRANSISTOR	
Q203	3SK181(5)	FE TRANSISTOR	
Q204	DTC144EU	TRANSISTOR	
Q205	DTC114TU	TRANSISTOR	
Q206	FMG1	TRANSISTOR	
Q211	2SD1450S,T	TRANSISTOR	
D202	DAP202U	DIODE	
D203	1SS133	DIODE	
R202	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R204	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R205	NRSA63J-202N	RESISTOR	2KΩ,1/16W
R206	NRSA63J-682N	RESISTOR	6.8KΩ,1/16W
R207	NRSA63J-122N	RESISTOR	1.2KΩ,1/16W
R208	NRSA63J-101N	RESISTOR	100Ω,1/16W
R209	QRSA08J-821YN	RESISTOR	820Ω,1/10W
R210	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R211	NRSA63J-124N	RESISTOR	120KΩ,1/16W
R212	NRSA63J-560N	RESISTOR	56Ω,1/16W
R213	NRSA63J-121N	RESISTOR	120Ω,1/16W
R214	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R215	NRSA63J-104N	RESISTOR	100KΩ,1/16W
R216	NRSA63J-271N	RESISTOR	270Ω,1/16W
R218	QRSA08J-821YN	RESISTOR	820Ω,1/10W
R222	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R223	NRVA63D-471N	RESISTOR	470Ω,1/16W
R225	QRD161J-101	RESISTOR	100Ω,1/6W
R231	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R232	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R233	NRSA63J-432N	RESISTOR	4.3KΩ,1/16W
R234	NRSA63J-561N	RESISTOR	560Ω,1/16W
R235	NRSA63J-152N	RESISTOR	1.5KΩ,1/16W
R236	NRSA63J-152N	RESISTOR	1.5KΩ,1/16W
R238	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R239	NRSA63J-273N	RESISTOR	27KΩ,1/16W
R240	NRSA63J-561N	RESISTOR	560Ω,1/16W
R241	NRSA63J-152N	RESISTOR	1.5KΩ,1/16W
R242	NRSA63J-152N	RESISTOR	1.5KΩ,1/16W
R243	NRSA63J-432N	RESISTOR	4.3KΩ,1/16W
R245	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R246	NRSA63J-273N	RESISTOR	27KΩ,1/16W
R247	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R248	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R249	NRSA63J-100N	RESISTOR	10Ω,1/16W
R259	NRSA63J-331N	RESISTOR	330Ω,1/16W
R261	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R262	NRSA63J-473N	RESISTOR	47KΩ,1/16W
R264	QVZ3518-103	V RESISTOR,SEPALATION	
R265	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R272	NRSA63J-391N	RESISTOR	390Ω,1/16W
R273	NRSA63J-271N	RESISTOR	270Ω,1/16W
R275	NRSA63J-561N	RESISTOR	560Ω,1/16W
R276	NRSA63J-471N	RESISTOR	470Ω,1/16W
R277	NRSA63J-331N	RESISTOR	330Ω,1/16W
R278	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R279	NRSA63J-432N	RESISTOR	4.3KΩ,1/16W
R280	NRSA63J-123N	RESISTOR	12KΩ,1/16W
R281	NRSA63J-123N	RESISTOR	12KΩ,1/16W
R282	QRD161J-432	RESISTOR	4.3KΩ,1/6W
R283	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R285	QRSA08J-162YN	RESISTOR	1.6KΩ,1/10W
R290	NRSA63J-273N	RESISTOR	27KΩ,1/16W
R291	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R292	QRSA08J-333YN	RESISTOR	33KΩ,1/10W
R293	NRSA63J-563N	RESISTOR	56KΩ,1/16W
R294	NRSA63J-154N	RESISTOR	150KΩ,1/16W
R295	NRSA63J-104N	RESISTOR	100KΩ,1/16W
R296	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R298	NRSA63J-182N	RESISTOR	1.8KΩ,1/16W
C202	NCF31HZ-473A	CAPACITOR	0.047μF,50V
C205	NCF31HZ-473A	CAPACITOR	0.047μF,50V
C206	NCB31HK-222A	CAPACITOR	0.0022μF,50V
C207	NCF31HZ-473A	CAPACITOR	0.047μF,50V
C208	NCF31HZ-473A	CAPACITOR	0.047μF,50V
C209	NCB31HK-222A	CAPACITOR	0.0022μF,50V
C210	NCF31HZ-473A	CAPACITOR	0.047μF,50V
C213	NCB31HK-103A	CAPACITOR	0.01μF,50V
C214	NCB31HK-103A	CAPACITOR	0.01μF,50V
C215	NCB31HK-103A	CAPACITOR	0.01μF,50V
C216	NCB31HK-103A	CAPACITOR	0.01μF,50V
C217	NCB31HK-103A	CAPACITOR	0.01μF,50V
C218	NCB31HK-103A	CAPACITOR	0.01μF,50V
C219	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C220	NCF31HZ-473A	CAPACITOR	0.047μF,50V
C221	QEKF1CM-226	E CAPACITOR	22μF,16V
C225	QCYA1HK-473	CAPACITOR	0.047μF,50V
C226	QEKF1CM-226	E CAPACITOR	22μF,16V
C228	QCYA1HK-221	CAPACITOR	220pF,50V
C233	QEKF1HM-225	E CAPACITOR	2.2μF,50V
C234	QEKF1CM-226	E CAPACITOR	22μF,16V
C236	QEKF1HM-225	E CAPACITOR	2.2μF,50V
C237	QCYA1HK-473	CAPACITOR	0.047μF,50V

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	C238	QEKF1CM-107	E CAPACITOR	100µF,16V
	C239	QFN31HJ-683	M CAPACITOR	0.068µF,50V
	C240	QFN31HJ-122	M CAPACITOR	0.0012µF,50V
	C241	QEKF1CM-226	E CAPACITOR	22µF,16V
	C242	QCYA1HK-473	CAPACITOR	0.047µF,50V
	C243	QETC1HM-105	E CAPACITOR	1µF,50V
	C244	QFN31HJ-332	M CAPACITOR	0.0033µF,50V
	C245	QCYA1HK-473	CAPACITOR	0.047µF,50V
	C246	QFN31HJ-683	M CAPACITOR	0.068µF,50V
	C247	QFN31HJ-122	M CAPACITOR	0.0012µF,50V
	C248	QFN31HJ-332	M CAPACITOR	0.0033µF,50V
	C249	QETC1HM-105	E CAPACITOR	1µF,50V
	C251	QEKF1CM-226	E CAPACITOR	22µF,16V
	C252	QEKF1CM-226	E CAPACITOR	22µF,16V
	C253	QEKF1HM-105	E CAPACITOR	1µF,50V
	C254	QETC1HM-105	E CAPACITOR	1µF,50V
	C257	NCF31HZ-473A	CAPACITOR	0.047µF,50V
	C258	QEKF1CM-226	E CAPACITOR	22µF,16V
	C259	QCFA1CZ-224	CAPACITOR	0.22µF,16V
	C260	QEKF1HM-225	E CAPACITOR	2.2µF,50V
	C261	QEKF1HM-225	E CAPACITOR	2.2µF,50V
	C264	QERF1CM-336	E CAPACITOR	33µF,16V
	C265	QCYA1HK-473	CAPACITOR	0.047µF,50V
	C266	NCT06CH-220A	CAPACITOR	22pF,50V
	C267	QCYA1HK-473	CAPACITOR	0.047µF,50V
	C268	QCYA1HK-473	CAPACITOR	0.047µF,50V
	C269	QCYA1HK-473	CAPACITOR	0.047µF,50V
	C271	QEKF1CM-226	E CAPACITOR	22µF,16V
	C272	QEKF1CM-226	E CAPACITOR	22µF,16V
	C273	QEKF1CM-226	E CAPACITOR	22µF,16V
	C278	QCYA1HK-473	CAPACITOR	0.047µF,50V
	C279	NCF31HZ-473A	CAPACITOR	0.047µF,50V
	C282	QEKF1HM-105	E CAPACITOR	1µF,50V
	C283	QEKF1HM-105	E CAPACITOR	1µF,50V
	C290	NCB31HK-103A	CAPACITOR	0.01µF,50V
	C292	NCT06CH-680A	CAPACITOR	68pF,50V
	C293	NCB31HK-102A	CAPACITOR	0.001µF,50V
	C294	NCF31HZ-473A	CAPACITOR	0.047µF,50V
	C297	QCYA1HK-221	CAPACITOR	220pF,50V
	C298	NCB31HK-221A	CAPACITOR	220pF,50V
	C299	QCYA1HK-472	CAPACITOR	0.0047µF,50V
	C301	NCB31HK-221A	CAPACITOR	220pF,50V
	C302	NCB31HK-221A	CAPACITOR	220pF,50V
	C303	QCYA1HK-221	CAPACITOR	220pF,50V
	C304	QCYA1HK-221	CAPACITOR	220pF,50V
	C305	NCB31HK-221A	CAPACITOR	220pF,50V
	C306	QCYA1HK-473	CAPACITOR	0.047µF,50V
	C307	NCF31HZ-473A	CAPACITOR	0.047µF,50V
	C310	QEK41HM-105	E CAPACITOR	1µF,50V
	C311	QEKF1HM-105	E CAPACITOR	1µF,50V
	C312	QEKF1HM-105	E CAPACITOR	1µF,50V
	L206	PU59152-120J	COIL	12µH
	CF202	PU52775-2	CERAMIC FILTER	
	CF203	PEVB0481	C DISCRIMINATER	
	LC201	PU59736-102	N FILTER	
	LC203	PU59736-102	N FILTER	
⚠	X201	PEVB0484	CRYSTAL RESONATOR	
⚠	X202	PEVB0479	CRYSTAL RESONATOR	
	K207	PELN0662-Z	FERRATE BEADS	
	K209	PELN0662-Z	FERRATE BEADS	
	SLD1	PQ34522	SHIELD CASE	
	SLD2	PQ34523	SHIELD FRAME	
	SLD3	PQ34524	SHIELD PLATE	
	CN201	PU59555-3	CONNECTOR,(1-3) MAIN	
	CN202	PU59555-3	CONNECTOR,(1-3) IF	
	CN203	PU59555-4	CONNECTOR,(1-4) MAIN	
	CN204	PU59555-4	CONNECTOR,(1-4) MAIN	

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DISPLAY/SW BOARD ASSEMBLY <28>

REF No.	PART No.	PART NAME, DESCRIPTION	
PWBA1	PB10779D1-01	DISP/SW BOARD ASSEMBLY	
IC1	UPD16311GC(K)	IC	
	or UPD16311GC(E)	IC	
IC2	GP1U801X	IR DETECT UNIT	
D1	RD4.7ES-T1B2	ZENER DIODE	
D2	1SS132	DIODE	
D3	1SS132	DIODE	
D4	1SS132	DIODE	
D5	1SS132	DIODE	
D7	1SS132	DIODE	
D8	SLH-34DC3F	LE DIODE,HYPER BASS	
D9	11ES2	DIODE	
D11	1SS132	DIODE	
D18	1SS132	DIODE	
R1	QRD161J-103	RESISTOR	10KΩ,1/6W
R2	QRD161J-333	RESISTOR	33KΩ,1/6W
R3	QRD161J-333	RESISTOR	33KΩ,1/6W
R4	QRD161J-333	RESISTOR	33KΩ,1/6W
R5	QRD161J-333	RESISTOR	33KΩ,1/6W
R6	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R7	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R8	QRD161J-102	RESISTOR	1KΩ,1/6W
R9	QRD161J-151	RESISTOR	150Ω,1/6W
R10	QRD161J-103	RESISTOR	10KΩ,1/6W
R11	QRD161J-333	RESISTOR	33KΩ,1/6W
R12	QRD161J-103	RESISTOR	10KΩ,1/6W
R13	QRD161J-331	RESISTOR	330Ω,1/6W
R14	QRD161J-151	RESISTOR	150Ω,1/6W
R15	QRD161J-103	RESISTOR	10KΩ,1/6W
R17	QRD161J-331	RESISTOR	330Ω,1/6W
RA1	QRB045J-333XM	RESISTOR ARRAY	33KΩ,1/8W
C1	QETC0JM-107	E CAPACITOR	100µF,6.3V
C2	QETC1HM-106	E CAPACITOR	10µF,50V
C3	QCFB1HZ-473	CAPACITOR	0.047µF,50V
C4	QCFB1HZ-473	CAPACITOR	0.047µF,50V
C5	QCSB1HJ-330	CAPACITOR	33pF,50V
C7	QRD161J-103	RESISTOR	10KΩ,1/6W
C8	QCFB1HZ-104	CAPACITOR	0.1µF,50V
C9	QCSB1HJ-330	CAPACITOR	33pF,50V
C10	QEK60JM-476	E CAPACITOR	47µF,6.3V
C11	QCVB1CM-103	CAPACITOR	0.01µF,16V
C12	QETC1AM-227	E CAPACITOR	220µF,10V
C15	QCBB1HJ-102	CAPACITOR	0.001µF,50V
L1	PU48530-101J	COIL	100µH
S1	PESW0525-02Z	TACT SWITCH,CH+	
S2	PESW0525-02Z	TACT SWITCH,REC	
S3	PESW0525-02Z	TACT SWITCH,PAUSE	
S4	PESW0525-02Z	TACT SWITCH,CH−	
S5	PESW0525-02Z	TACT SWITCH,PLAY	

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
S6	PESW0525-02Z	TACT SWITCH,STOP/EJECT	
S9	PESW0525-02Z	TACT SWITCH,SP/LP	
S17	PESW0525-02Z	TACT SWITCH,P/M/S	
S19	PESW0525-02Z	TACT SWITCH,HIFI	
S20	PESW0525-02Z	TACT SWITCH,HYPER BASS	
S29	PESW0525-02Z	TACT SWITCH,A/M/BW	
S51	PESW0551	SLIDE SWITCH,TV SOUND	
FDP1	PEDP0106	FLUORESCENT DISPLAY PANEL	
HD2	PQ31334-1-2	D.HOLDER (R)	
HD3	PQ31333-1-2	D.HOLDER (L)	
CN1	PEMC0915-109	FFC CONNECTOR,(1-9) MAIN	
CN2	PEMC0889-009	B TO B CONNECTOR,(1-9) SWITCH	

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MEMORY BOARD ASSEMBLY <35>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
PWBA3	PB10746A3-01	MEMORY BOARD ASSY	
IC201	CAT35C102P	IC	
	or S-2924AI10G	IC	
	or S-2924AI10M	IC	
C201	QCYA1HK-103	CAPACITOR	0.01μF,50V
CN4	PEMC0713-105	HOUSING,(1-5) MAIN	

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SWITCH/JACK BOARD ASSEMBLY <36>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
PWBA2	PB10779D2-01	SW/JACK BOARD ASSEMBLY	
⚠ D17	SLH-34VC3F	LE DIODE,OPERATE	
S10	PESW0525-02Z	TACT SWITCH,CANCEL	
S11	PESW0525-02Z	TACT SWITCH,TIMER	
S12	PESW0525-02Z	TACT SWITCH,OPERATE	
S13	PESW0525-02Z	TACT SWITCH,START+	
S14	PESW0525-02Z	TACT SWITCH,START−	
S15	PESW0525-02Z	TACT SWITCH,STOP+	
S16	PESW0525-02Z	TACT SWITCH,STOP−	
HD1	PQ43214	LED HOLDER,D17	
CN3	PEMC0825-009	B TO B CONNECTOR,(1-9) DISPLA	

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PRE/REC AMP BOARD ASSEMBLY <43>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
PWBA1	PB10771C-02	PRE/REC BOARD ASSEMBLY	
IC501	AN3389SB-XE	IC	
IC1001	AN3380NK	IC	
Q503	2SC4081(QRS)	TRANSISTOR	
Q504	2SC4081(QRS)	TRANSISTOR	
Q505	2SA1576(QRS)	TRANSISTOR	
Q506	2SC4081(QRS)	TRANSISTOR	
Q507	2SC4081(QRS)	TRANSISTOR	
Q508	DTC144WU	TRANSISTOR	
Q512	DTC114WU	TRANSISTOR	
Q513	DTA144WU	TRANSISTOR	
Q514	DTA124EU	TRANSISTOR	
Q517	DTA144WU	TRANSISTOR	
Q518	DTA144WU	TRANSISTOR	
Q1001	DTC124TU	CHIP D TRANSISTOR	
Q1002	DTC124TU	CHIP D TRANSISTOR	
Q1003	DTC124TU	CHIP D TRANSISTOR	
Q1004	DTC114WU	TRANSISTOR	
D502	1SS133	DIODE	
D505	1SS133	DIODE	
D506	1SS133	DIODE	
D508	DAN202U	DIODE	
D509	DAN202U	DIODE	
R509	QRSA08J-432YN	RESISTOR	4.3KΩ,1/10W
R510	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
R514	QRSA08J-681YN	RESISTOR	680Ω,1/10W
R515	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R516	QRSA08J-751YN	RESISTOR	750Ω,1/10W
R517	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
R518	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
R519	QRSA08J-391YN	RESISTOR	390Ω,1/10W
R520	QRSA08J-391YN	RESISTOR	390Ω,1/10W
R521	QRSA08J-911YN	RESISTOR	910Ω,1/10W
R522	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
R523	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
R524	QRSA08J-821YN	RESISTOR	820Ω,1/10W
R525	QRSA08J-152YN	RESISTOR	1.5KΩ,1/10W
R526	QRSA08J-122YN	RESISTOR	1.2KΩ,1/10W
R527	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R528	QRSA08J-122YN	RESISTOR	1.2KΩ,1/10W
R531	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R532	QRSA08J-302YN	RESISTOR	3KΩ,1/10W
R533	QRSA08J-272YN	RESISTOR	2.7KΩ,1/10W
R534	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R536	NRVA62D-433N	RESISTOR	43KΩ,1/16W
R537	QRSA08J-124YN	RESISTOR	120KΩ,1/10W
R539	QRD161J-334	RESISTOR	330KΩ,1/6W
R540	QRSA08J-681YN	RESISTOR	680Ω,1/10W
R541	QRSA08J-271YN	RESISTOR	270Ω,1/10W
R542	QRSA08J-271YN	RESISTOR	270Ω,1/10W
R543	QRSA08J-301YN	RESISTOR	300Ω,1/10W
R544	QRSA08J-301YN	RESISTOR	300Ω,1/10W
R545	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R548	QRSA08J-154YN	RESISTOR	150KΩ,1/10W
R550	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R551	QRSA08J-105YN	RESISTOR	1MΩ,1/10W
R552	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R554	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R570	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R571	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
R1001	QRSA08J-273YN	RESISTOR	27KΩ,1/10W
R1002	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R1003	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R1004	QRSA08J-274YN	RESISTOR	270KΩ,1/10W
R1005	QRSA08J-222YN	RESISTOR	2.2KΩ,1/10W
R1006	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R1007	QRSA08J-153YN	RESISTOR	15KΩ,1/10W
R1010	QRSA08J-102YN	RESISTOR	1KΩ,1/10W
R1011	QRD161J-102	RESISTOR	1KΩ,1/6W
R1012	QRSA08J-560YN	RESISTOR	56Ω,1/10W
R1013	QRSA08J-560YN	RESISTOR	56Ω,1/10W

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	C504	QCFA1HZ-103	CAPACITOR	0.01µF,50V
	C505	QCFA1HZ-103	CAPACITOR	0.01µF,50V
	C506	QCFA1HZ-103	CAPACITOR	0.01µF,50V
	C507	QCSA1HJ-331	CAPACITOR	330pF,50V
	C508	QCSA1HJ-150	CAPACITOR	15pF,50V
	C509	QCFA1HZ-103	CAPACITOR	0.01µF,50V
	C510	QCSA1HJ-270	CAPACITOR	27pF,50V
	C511	QCFA1HZ-103	CAPACITOR	0.01µF,50V
	C512	QCSA1HJ-390	CAPACITOR	39pF,50V
	C513	QCSA1HJ-471	CAPACITOR	470pF,50V
	C514	QCSA1HJ-120	CAPACITOR	12pF,50V
	C515	QCSA1HJ-7R0	CAPACITOR	7pF,50V
	C516	QCC11CJ-104	CAPACITOR	0.1µF,16V
	C517	QCFA1HZ-103	CAPACITOR	0.01µF,50V
	C518	QCSA1HJ-391	CAPACITOR	390pF,50V
	C520	QCFA1HZ-103	CAPACITOR	0.01µF,50V
	C521	QCFA1HZ-103	CAPACITOR	0.01µF,50V
	C522	QFV11HJ-104	F CAPACITOR	0.1µF,50V
	C523	QCYA1HK-333	CAPACITOR	0.033µF,50V
	C524	QCSA1HJ-680	CAPACITOR	68pF,50V
	C525	QCSA1HJ-560	CAPACITOR	56pF,50V
	C526	QCYA1HK-333	CAPACITOR	0.033µF,50V
	C527	QCFA1HZ-103	CAPACITOR	0.01µF,50V
	C528	QCFA1HZ-103	CAPACITOR	0.01µF,50V
	C529	QCYA1HK-333	CAPACITOR	0.033µF,50V
	C530	QCSA1HJ-680	CAPACITOR	68pF,50V
	C531	QCSA1HJ-560	CAPACITOR	56pF,50V
	C532	QCYA1HK-333	CAPACITOR	0.033µF,50V
	C533	QFV11HJ-104	F CAPACITOR	0.1µF,50V
	C534	QCFA1HZ-103	CAPACITOR	0.01µF,50V
	C535	QCC11CJ-104	CAPACITOR	0.1µF,16V
	C536	QER61CM-476	E CAPACITOR	47µF,16V
	C537	QER60JM-476	E CAPACITOR	47µF,6.3V
	C538	QCVB1CN-103	CAPACITOR	0.01µF,16V
	C539	QFV11HJ-103	F CAPACITOR	0.01µF,50V
	C540	QCSA1HJ-470	CAPACITOR	47pF,50V
	C541	QCSA1HJ-390	CAPACITOR	39pF,50V
	C543	QCFA1HZ-103	CAPACITOR	0.01µF,50V
	C545	QCVB1CN-103	CAPACITOR	0.01µF,16V
	C549	QCFA1CZ-224	CAPACITOR	0.22µF,16V
	C550	QCFA1HZ-103	CAPACITOR	0.01µF,50V
	C551	QCSA1HJ-680	CAPACITOR	68pF,50V
	C554	QCFA1HZ-103	CAPACITOR	0.01µF,50V
	C556	QCSA1HJ-1R0	CAPACITOR	1pF,50V
	C558	QCSA1HJ-7R0	CAPACITOR	7pF,50V
	C559	QCSA1HJ-120	CAPACITOR	12pF,50V
	C1001	QCFA1CZ-104	CAPACITOR	0.1µF,16V
	C1002	QCYA1HK-471	CAPACITOR	470pF,50V
	C1003	QCYA1HK-152	CAPACITOR	0.0015µF,50V
	C1004	QCYA1HK-152	CAPACITOR	0.0015µF,50V
	C1005	QCYA1HK-102	CAPACITOR	0.001µF,50V
	C1006	QCYA1HK-102	CAPACITOR	0.001µF,50V
	C1007	QCFA1CZ-224	CAPACITOR	0.22µF,16V
	C1008	QCYA1HK-471	CAPACITOR	470pF,50V
	C1009	QEK60JM-107	E CAPACITOR	100µF,6.3V
	C1010	QCFA1HZ-333	CAPACITOR	0.033µF,50V
	C1011	QCVB1CN-103	CAPACITOR	0.01µF,16V
	C1012	QCFA1CZ-224	CAPACITOR	0.22µF,16V
	C1013	QCSA1HJ-470	CAPACITOR	47pF,50V
	C1014	QCSA1HJ-101	CAPACITOR	100pF,50V
	C1015	QCFA1HZ-103	CAPACITOR	0.01µF,50V
	C1016	QCFA1HZ-103	CAPACITOR	0.01µF,50V

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	L501	PU54223-470J	COIL	47µH
	L503	PU54223-680K	COIL	68µH
	L504	PU59152-560J	COIL	56µH
	L505	PU59152-220J	COIL	22µH
	L506	PU59152-470J	COIL	47µH
	L507	PU59152-470J	COIL	47µH
	L508	PU59152-121J	COIL	120µH
	L509	PU59152-330J	COIL	33µH
	L510	PU59152-180J	COIL	18µH
	L1001	PELN0530-101JZ	COIL	100µH
	BKT1	PQ21512	S.FRAME(PRE.)	
	CN501	PEMC0978-118	B TO B CONNECTOR,(1-18) MAIN	
	CN502	PEMC1003-009	CONNECTOR(1-9)UPPER DRUM BOAR	
	CN1001	PU60910-106	WIRE TRAP,(1-6) MAIN	

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DECK TERMINAL BOARD ASSEMBLY <51>

	PWBA1	PB10718D1	DECK TERMINAL BOARD ASSEMBLY	
	Q3	PT491F	END SENSOR	
	D1	SIR-381SB3FM	LE DIODE	
	D2	RD6.2ES-T1B2	ZENER DIODE	
	R1	QRD161J-102	RESISTOR	1KΩ,1/6W
	R3	QRD161J-331	RESISTOR	330Ω,1/6W
	R4	QRD161J-820	RESISTOR	82Ω,1/6W
	C1	QCVB1CM-103	CAPACITOR	0.01µF,16V
	PS1	PS5705HR	PH INTERRUPTER	
	CN1	PEMC0915-016	FFC CONNECTOR	
	CN2	PU60642	7PIN CONNECTOR	
	CN3	PU60640	4PIN CONNECTOR	
	CN4	PU60910-4	CONNECTOR	

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LOARDING MDA BOARD ASSEMBLY <55>

	PWBA2	PB10718A2-01	LOADING MDA BOARD ASSEMBLY	
⚠	IC1	BA6418N	IC	
	C1	QETA1CM-227	E CAPACITOR	220µF,16V
	CN1	PU60910-104	WIRE TRAP	

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CASSETTE HOUSING BOARD <56>

	PWBA1	PB10718A3-01	CASSETTE HOUSING BOARD ASSY	
	Q2	PN268VI	PHOTO TRANSISTOR	
	C1	QCVB1CN-103	CAPACITOR	0.01µF,16V
	S1	PESW0589	PUSH SWITCH	
	CN2	PU60639	4PIN SOCKET,DECK TERMINAL	

#⚠ REF No. PART No. PART NAME, DESCRIPTION

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HYPER BASS BOARD ASSEMBLY <75>

PWBA3	PB10735A3-01	HYPER BASS BOARD ASSEMBLY	
IC501	XRA15218N	IC	
	or BA15218N	IC	
IC502	XRA15218N	IC	
	or BA15218N	IC	
IC503	BA6138	IC	
Q501	2SC4081(RS)	TRANSISTOR	
Q502	2SC4081(RS)	TRANSISTOR	
Q503	DTA114EU	TRANSISTOR	
R501	QRSA08J-243YN	RESISTOR	24KΩ,1/10W
R502	QRSA08J-243YN	RESISTOR	24KΩ,1/10W
R503	QRSA08J-682YN	RESISTOR	6.8KΩ,1/10W
R504	QRSA08J-682YN	RESISTOR	6.8KΩ,1/10W
R505	QRSA08J-104YN	RESISTOR	100KΩ,1/10W
R506	QRSA08J-104YN	RESISTOR	100KΩ,1/10W
R507	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
R508	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
R509	QRSA08J-123YN	RESISTOR	12KΩ,1/10W
R510	QRSA08J-123YN	RESISTOR	12KΩ,1/10W
R511	QRSA08J-332YN	RESISTOR	3.3KΩ,1/10W
R512	QRSA08J-332YN	RESISTOR	3.3KΩ,1/10W
R513	QRSA08J-682YN	RESISTOR	6.8KΩ,1/10W
R514	QRSA08J-682YN	RESISTOR	6.8KΩ,1/10W
R515	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
R516	QRSA08J-472YN	RESISTOR	4.7KΩ,1/10W
R519	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R520	QRSA08J-103YN	RESISTOR	10KΩ,1/10W
R521	QRSA08J-104YN	RESISTOR	100KΩ,1/10W
R522	QRSA08J-104YN	RESISTOR	100KΩ,1/10W
C501	QCYA1HK-473	CAPACITOR	0.047μF,50V
C502	QCYA1HK-473	CAPACITOR	0.047μF,50V
C507	QETF1CM-106	E CAPACITOR	10μF,16V
C508	QETC1CM-106	E CAPACITOR	10μF,16V
C509	QETF1CM-106	E CAPACITOR	10μF,16V
C510	QETF1CM-106	E CAPACITOR	10μF,16V
C511	QETF1EM-475	E CAPACITOR	4.7μF,25V
C512	QETF1EM-475	E CAPACITOR	4.7μF,25V
C513	QETF1CM-106	E CAPACITOR	10μF,16V
CN501	PEMC0713-109	HOUSING,(1-9) MAIN	
CN502	PEMC0713-106	HOUSING,(2-7) MAIN	

SECTION 6
TECHNICAL INFORMATIONS

6.1 SYSCON CIRCUIT

6.1.1 Syscon CPU pin function (IC601) 1/2

PIN NO.	LABEL	IN/OUT	NOTE
1	S. CURVE	IN	TUNING CHECK
2	P. DOWN	IN	POWER DOWN DETECT(POWER DOWN:H - L)
3	FM DET	IN	TUNING CHECK
4	AVGFM	IN	AUTO TRACKING DATA(AVERAGE VOLTAGE OF PB FM LEVEL) INPUT
5	AVSS	-	GND
6	TEST	-	GND
7	X2	-	MAIN SYSTEM CLOCK(10MHz)
8	X1	-	MAIN SYSTEM CLOCK(10MHz)
9	VSS	-	GND
10	OSC1	IN	SUB SYSTEM CLOCK
11	OSC2	OUT	SUB SYSTEM CLOCK
12	RESET	IN	RESET AT CONNECT VCR TO AC
13	(NMI)	-	NC
14	YNR CTL	OUT	PICTURE CONTROL(YNR CTL:L)
15	DEM CLK	OUT	DEMOD DATA TRANSFER CLOCK
16	DMUTE	OUT	DEMOD MUTE CONTROL(MUTE ON:L)
17	SYNC DET	IN	SYNC DETECT(NO SYNC:H)
18	AI DATA	OUT	AUDIO CONTROL DATA OUTPUT
19	REC	OUT	REC:H
20	DEM DATA	OUT	DEMOD CONTROL DATA OUTPUT
21	RECST	OUT	REC START:L
22	CTL P	IN	CONTROL PULSE INPUT(MODE DETECT/TRACKING CONTROL)
23	TUFG	IN	TAKE-UP REEL ROTATION DETECT
24	KILLER CTL	OUT	B/W CONTROL:L
25	H. RECST	OUT	HiFi REC START:L
26	ARECST	OUT	AUDIO REC START:L
27	S/E/L CTL	OUT	TAPE SPEED CONTROL(SP:H/LP:M/EP:L)
28	A. MUTE	OUT	AUDIO MUTE CONTROL(MUTE ON:H)
29	N. D	IN	NORMAL AUDIO DETECT(NORMAL AUDIO:L)
30	3. 58DET	-	NC
31	H SEL	OUT	HEAD SELECT CONTROL(SP:L/LP:M/EP:H)
32	A/M/S	OUT	PRE/REC CIRCUIT CONTROL(AUTO:M/MANUAL:H/S&S:L)
33	MCE	OUT	MEMORY IC CHIP ENABLE
34	AI CLK	OUT	AUDIO DATA TRANSFER CLOCK
35	EXT DATA	OUT	ABIT EXP DATA OUTPUT FOR CHANNEL PLS CONTROL
36	S/M CLK	OUT	DATA TRANSFER CLOCK
37	SERVO	OUT	CAPSTAN MOTOR CONTROL(SERVO MODE:L/SYSCON MODE;H)
38	PAUSE	OUT	CAPSTAN MOTOR CONTROL(PAUSE:L)
39	START. S	IN	LEADER TAPE DETECT(DETECT ON:L)
40	CASS	IN	CASSETTE SENSOR(SENSOR ON:L)

Table 6-1-1-A SYSCON CPU pin function (1/2)

6.1.2 Syscon CPU pin function (IC601) 2/2

PIN NO.	LABEL	IN/OUT	NOTE
41	LSA	IN	MECHANISM MODE DETECT(SW A)
42	LSB	IN	MECHANISM MODE DETECT(SW B)
43	REC SF	IN	REC SAFETY SWITCH DETECT(SW ON:L)
44	END S	IN	TRAILER TAPE DETECT(DETECT ON:L)
45	VPCTL	OUT	V.PULSE ADDITION TIMING CONTROL
46	CAP REV	OUT	CAPSTAN MOTOR CONTROL(FWD:H/REV:L)
47	MES DET	IN	MESECAM DETECT(PAL:H)
48	CCIR	OUT	CCIR:L
49	NTSC	OUT	NTSC MODE:L
50	RC IN	IN	REMOTE CONTROL DATA INPUT
51	V.MUTE	OUT	VIDEO MUTE CONTROL(MUTE ON:H)
52	B/W.LPSPCL	OUT	LP SPECIAL PB MODE:H
53	V.SYNC	IN	V SYNC INPUT
54	EXV DATA	OUT	VIDEO CONTROL DATA OUTPUT
55	LCM1	OUT	LOADING MOTOR CONTROL(1)
56	LCM2	OUT	LOADING MOTOR CONTROL(2)
57	S-OUT	OUT	ON SCREEN CONTROL DATA
58	S-IN	IN	ON SCREEN /FDP CONTROL DATA
59	S-CLK	OUT	DATA TRANSFER CLOCK
60	SERVO DATA	OUT	SERVO IC CONTROL DATA
61	FDATA	IN/OUT	MOMORY IC DATA
62	SERVO CLK	OUT	DATA TRANSFER CLOCK
63	VCC	-	SYSTEM POWER
64	STB	IN	CLOCK OUTPUT PERMISSION
65	R.PAUSE	IN	PAUSE CONTROL(PAUSE ON:L)
66	PCTL	OUT	POWER CONTROL(POWER ON:H)
67	CPLS	IN	CONTROL PULSE
68	PWM	OUT	CHANNEL DATA
69	CAP FG	IN	TAPE SPEED DETECT/BACK SPACE COUNT
70	DUTY I/O	IN/OUT	IN/OUT INDEX DATA CONTROL
71	D.FF	IN	DRUM ROTATION DETECT/REC TIMING CONTROL
72	AVCC	-	SYSTEM POWER(for ANALOG)
73	JSA	IN	JOG PULSE INPUT(A)
74	JSB	IN	JOG PULSE INPUT(B)
75	DRUM V	OUT	DRUM MOTOR CONTROL
76	CAP V	OUT	CAPSTAN MOTOR CONTROL
77	STL	IN	SHUTTLE SWITCH
78	A.LVLL	IN	AUDIO INDICATOR LEVEL INPUT(Lch)
79	PROTECT	IN	POWER PROTECT DETECT(POWER OFF:L)
80	A.LVLR	IN	AUDIO INDICATOR LEVEL INPUT(Rch)

Table 6-1-1-B SYSCON CPU pin function (2/2)

6.2 TIMER CIRCUIT

6.2.1 Timer CPU pin function (IC1)

PIN NO.	LABEL	IN/OUT	NOTE
1	SW1	-	GND
2	SW2	-	
3	SW3	-	
4	SW4	-	
5	DOUT	OUT	SERIAL DATA OUTPUT
6	DIN	IN	SERIAL DATA INPUT
7	IC	-	NC
8	CLK	IN	DATA TRANSFER CLOCK
9	STB	OUT	CLOCK OUTPUT PERMISSION
10	KEY1	IN	KEY SCAN DATA INPUT
11	KEY2	IN	
12	KEY3	IN	
13	KEY4	IN	
14	VDD	-	UNSW5V
15	S1	OUT	SEGMENT DISPLAY DATA / KEY SCAN PULSE OUTPUT
16	S2	OUT	
17	S3	OUT	
18	S4	OUT	
19	S5	OUT	
20	S6	OUT	SEGMENT DISPLAY DATA OUTPUT
21	S7	OUT	
22	S8	OUT	
23	S9	OUT	
24	S10	OUT	
25	S11	OUT	
26	S12	OUT	SEGMENT DISPLAY DATA/KEY SCAN PULSE OUTPUT
27	S13	OUT	SEGMENT DISPLAY DATA OUTPUT
28	S14	OUT	
29	S15	OUT	
30	S16	OUT	
31	S17	OUT	
32	S18	OUT	
33	VDD	-	UNSW 5V
34	VEE	-	for FDP DRIVE
35	G9	OUT	COLUMN DISPLAY DATA OUTPUT (GRID CONTROL)
36	G8	OUT	
37	G7	OUT	
38	G6	OUT	
39	G5	OUT	
40	G4	OUT	
41	G3	OUT	
42	G3	OUT	
43	G2	OUT	
44	G1	OUT	

Table 6-2-1-A TIMER CPU pin function (1/2)

PIN NO.	LABEL	IN/OUT	NOTE
45	VDD	-	UNSW 5 V
46	NC	-	NC
47	NC	-	NC
48	NC	-	NC
49	HYPER BASS	OUT	HYPER BASS LED CONTROL (LED ON: H)
50	OPERATE	OUT	LED CONTROL (LED ON: H)
51	VSS	-	GND
52	OSC	-	NOT USED

Table 6-2-1-B TIMER CPU pin function (2/2)